

Euro conversion

Meet the real millennial challenge. **Follows page 72**

**Web spotlight on you**

Deja News plan to match ads with interests sparks privacy worries. 3

Windows 98

Reviewers find it better suited for power users than corporate systems. 59



COMPUTERWORLD

The World's Technology Newspaper

News updates, features, forums: www.computerworld.com
June 29, 1998 • Vol. 32 • No. 26 • 124 pages • \$4/Copy

HIGH-TECH ISSUES TOP WASHINGTON'S AGENDA

SPECIAL REPORT

Legislators, regulators and jurists in Washington are grappling with some of the toughest policy questions of the Information Age: How should electronic commerce be taxed? Should businesses have virtually unbreakable encryption? Should Microsoft be reined in? This week *Computerworld* presents a comprehensive report on how decisions by the federal government will affect corporate technology managers for years to come. **The stories start on page 73.** Some highlights:

YEAR 2000: Users don't want overregulation, but they do want the feds to raise awareness so that phones, banks and power plants will work. **Page 78**

TELECOM REFORM: Network managers are "very frustrated" that the 1996 law has been so ineffective at spurring competition and better service. **Page 76**

ENCRYPTION: Restrictions on exporting 128-bit encryption

could put a crimp in global electronic commerce. **Page 76**

MONEY & POLITICS: Microsoft used to steer its contributions mostly to Democrats but has switched to the Republicans, who control the agenda. **Page 74**



In an exclusive *Computerworld* Interview, Vice President Al Gore discusses the administration's controversial encryption policy, high-tech visas, Internet taxes, his favorite Web sites — and the year 2000 hot seat the next chief executive will inherit. **Page 74**

Outsourcing 'gotchas'

► Contracts filled with year 2000 surprises

By Julia King
and Thomas Hoffman

BETTER WATCH your back. Any one of a fresh crop of dirty little outsourcing secrets could derail your year 2000 project and land your company in court.

First, if you have a contract, check the fine print. More often than not, date fixes aren't included in regular maintenance fees. You'll need to negotiate a separate agreement with your vendor.

Tech skills gap forces HR to bend a little

By Barb Cole-Gomolski

GARY PORTER is a human resources director at United Health Care Corp., but he reports to the CIO.

Porter was moved to the information systems division last November when the company realized that its centralized human resources group wasn't much help to IS in hiring. Today, for the first time in more than two years, virtually all of United Health Care's 2,000 IS positions are filled.

Such reorganizations are more common now that open IS jobs far exceed qualified candidates. With turnover rates on the rise, a thorny relationship with human resources only makes a bad situation worse, IS managers agreed.

The payoff of improving connections between human resources and IS is that companies can fill jobs faster and spend more time working on programs to keep workers from flying the coop.

Tech skills, page 100

projects. That leaves the user with even less expertise than it had before signing on with the outsourcer (see related story, page 101).

Needless to say, customers are unhappy with these practices, and some are considering legal action. That could get messy because the existing contract language usually doesn't specifically require vendors to make systems century-ready or spell out that customers must help pay for fixes.

As a result, lawyers and savvy users are urging year 2000 Outsourcing, page 101

"One trend we see coming is for vendors to regard the shortage of IT and year 2000 staff as an act of God" for which they can't be held responsible.

— PETER BENDOR-SAMUEL,
PRESIDENT OF EVEREST,
A DALLAS-BASED OUTSOURCING CONSULTANCY

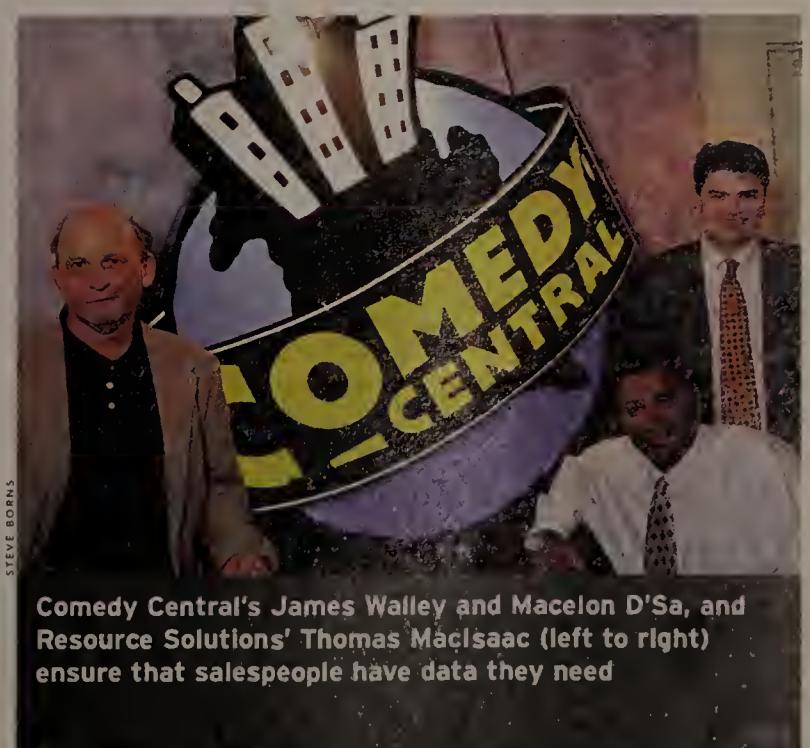
Cable channel gets info edge

By Kim Girard
NEW YORK

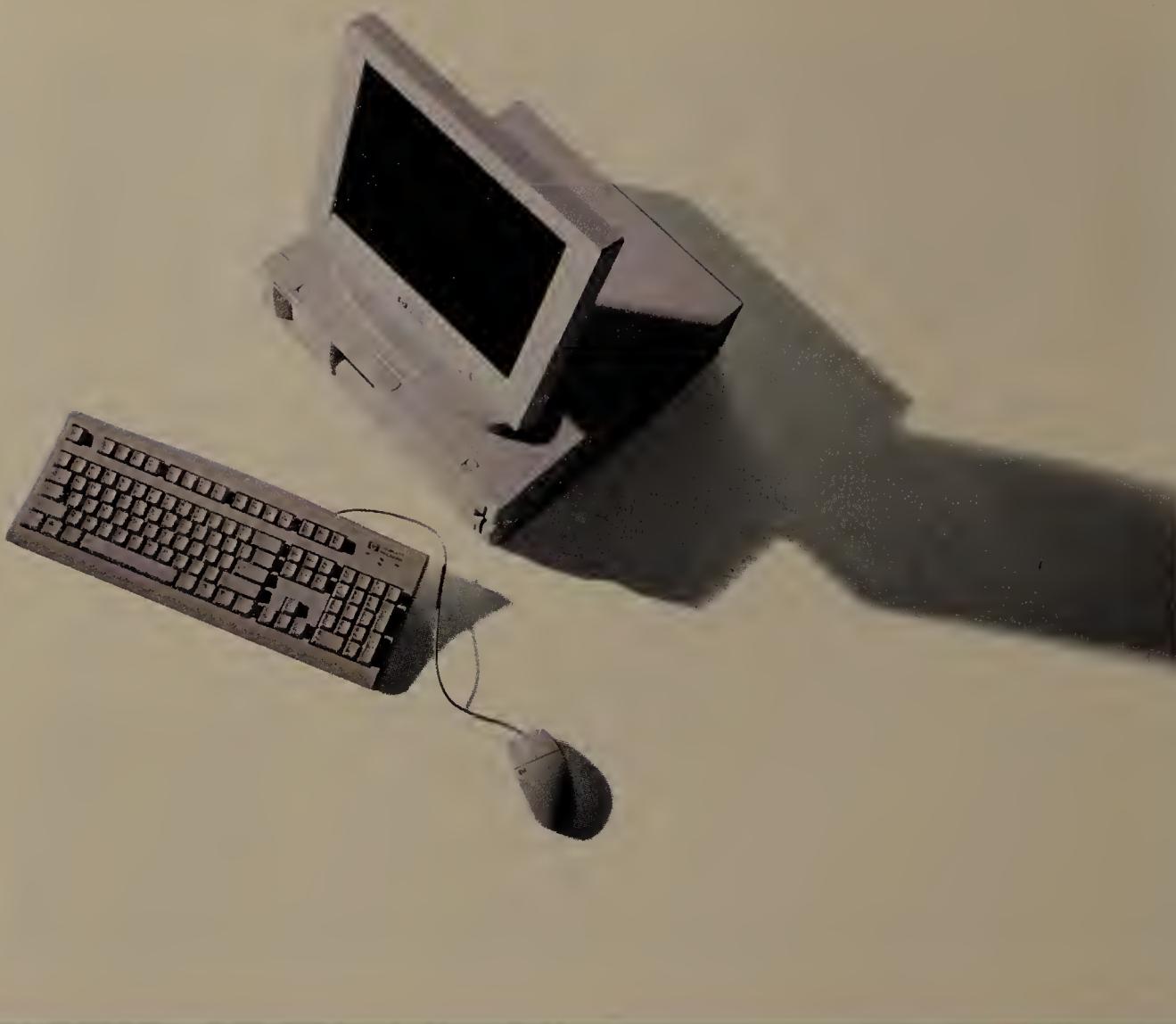
BEFORE COMEDY CENTRAL'S sales force split off from MTV, its customer tracking system was nothing to smile about.

"We had access to nothing,"

said James Walley, vice president of information technology. Typically, salespeople requested account information from MTV — a sister cable channel that competes with Comedy Central for subscribers — which was Comedy Central, page 100



Comedy Central's James Walley and Macelon D'Sa, and Resource Solutions' Thomas MacIsaac (left to right) ensure that salespeople have data they need



hp HEWLETT®
PACKARD
Expanding Possibilities

- 1) COMBINE 1 PART HP VECTRA VL WITH 1 PART WINDOWS NT® WORKSTATION.**
- 2) GARNISH WITH TRADE ACCOLADES.**
- 3) SPREAD LIBERALLY OVER CORPORATE STRUCTURE.**

Our HP Vectra VL with Windows NT has just won PC Magazine's Editors Choice Award. What else would you expect from the fastest growing PC supplier? The HP Vectra running on Windows NT can provide your business with reliability, scalability, manageability and, of course, performance. For info on the affordable HP Vectra with NT: www.hp.com/go/vectra/wnt.

Intel 233, 266, 300 or 333MHz Pentium® II processor

32MB/64MB SDRAM, expandable to 384MB

3.2GB, 4.3GB or 6.4GB SMART II Ultra ATA/33 hard-disk drive, expandable up to 12.8GB

HP TopTools PC management software

Windows NT Workstation

Starting at \$1,309*

*Starting U.S. street price. Monitor not included. †International Data Corp. Q4 1997 worldwide factory shipment results, or leading PC manufacturers versus year-ago quarter. Intel Inside and Pentium are registered trademarks and MMX is a trademark of Intel Corporation. Microsoft and Windows NT are registered trademarks of Microsoft Corporation. ©1998 Hewlett-Packard Company. PPG498

UP FRONT

Big brother

For a business that prides itself so much on technology innovation, the computer industry has had a lot of distractions this year. Consider some of the recent major news stories: the government sues Microsoft and Intel; the European Union threatens to block the MCI/WorldCom merger; Internet taxation becomes a congressional debate; the government moves to legislate online privacy standards; the newly deregulated telecommunications industry goes merger mad; and controversy rages over immigration limits. Notice that none of this is about technology. It's about finding the proper role for government in what is fast becoming the world's largest industry.

The high-tech industry is uncomfortable with this federal scrutiny. After all, a lot of technology leaders still like to see themselves as garage-shop entrepreneurs trying to make insanely great products. Government should get the hell out, they figure.

That's understandable, even desirable. But highly unlikely. Information technology has become the largest unregulated industry in the world. Yet issues such as the year 2000 problem, cybersmut, privacy invasion and telephone slamming are reaching into the homes of every American. The computer industry has no analogue to the FDA, NTSB or the FAA. Rules created by those federal agencies and others to regulate their industries often simply don't apply to high tech.

This week, beginning on page 73, *Computerworld* takes an in-depth look at the government's role in IT. Internet taxation, telecommunications reform, changes to the Uniform Commercial Code and year 2000 liability may directly affect your company's bottom line. If your CEOs aren't asking about them yet, they will be soon. The feds are coming, like it or not. Be ready with the answers.

Paul Gillin, Editor
Internet: paul_gillin@cw.com

THE FIFTH WAVE



E-Mail Rich Tennant at the5wave@tiac.net

'net bid for ads tests privacy

► Deja News develops plan to better target advertising on its Web site

By Sharon Machlis

WEB DISCUSSION hub Deja News (www.dejanews.com) is developing plans to match registered users with detailed information from off-line consumer databases as a way to better target advertising to its users, a company executive said last week.

Few World Wide Web sites have gone public with such plans because many fear a backlash over privacy issues. "It's not talked about a whole lot," said Erica Rugullies, an analyst at Giga Information Group in Cambridge, Mass.

Deja News' targeted advertising plan

- Match user registrations with demographic and other information from off-line consumer databases to better target advertising
- Deal with such data only by user ID; personal information such as name and address to be kept with a third party
- Give consumers the choice of opting out

But, she added, Web sites "are already charging more" if they can offer up more focused groups of consumers by categories such as age and interests.

"We don't know if the reaction will be negative or not," said David Wilson, vice president of marketing at Deja News, Inc. in Austin, Texas. "But that's the direction we're going." He said he expects a system that includes a provision for users to opt out will be in place by year's end.

To address privacy concerns, Deja News will follow guidelines set up by the industry group Truste (www.truste.org) and deal with each user only by reference number; their identities will be kept by a trusted third party, most likely a Big Six accounting firm.

Still, such strategies are viewed with alarm by privacy advocates, who feel that consumers should give specific permission before Web sites start tracking and cross-referencing their behavior.

"Better surveillance does not

make better privacy," said Dave Banisar, staff counsel at the Electronic Privacy Information Center in Washington. "Every survey that's done ... shows that people don't want to become guinea pigs."

TRAFFIC UP; CASH FLAT

Deja News found that though traffic was growing quickly — it now claims 4.5 million users per month — revenue was flat. The site, which indexes, repackages and promotes thousands of Internet discussion groups, underwent a major redesign to become more attractive to sponsors and already has signed up advertisers including American Airlines, Microsoft Corp. and Pennzoil Co.

But Wilson said the move to more finely focus ads based on consumer "psychographics" is part of a plan to keep the site both comprehensive and free.

Top Web sites are finding that better-targeted ads are decidedly more lucrative. Tripod, Inc., which offers free home pages to its registered users, doesn't match its users with outside data. But the company already has information on many of them based on registration forms and the contents of their home pages.

Tripod charges twice the rate for demographically targeted ads as for general, "run-of-site" space, yet "we never have enough targeted inventory," said Bo Peabody, CEO of the Williamstown, Mass., company. "The minute we get a targeted impression, we can turn it into cash."

Many of those who buy ads say they also are more interested in finding specific groups of consumers on the Web by demographics such as age, income and interests.

"That would be the sole reason why we would direct our clients to purchase online advertising," said Brian Mansfield, vice president of interactive production at Foote, Cone & Belding, a San Francisco agency. "The reach online is not as great as what you typically get with a traditional advertising buy ... but you can reach more of your core target." □

Top dogs

Deja News' move to develop finely targeted advertising opportunities comes as Internet advertising revenue is rising: First-quarter figures this year were 271% higher than last year, according to the Internet Advertising Bureau.

Yet money is increasingly concentrated toward the top Web sites with the highest amount of traffic.

During a panel discussion at the Business Online98 conference in San Francisco, for example, J. Crew Group, Inc.'s new media director, Brian Sugar, said the company was planning a "seven-figure" advertising campaign to promote its online site, which now accounts for 5% of the company's overall revenue.

J. Crew officials are talking with top portal sites. Last Christmas season, sales from consumers directed to jcrew.com from America Online "more than doubled our top retail store," Sugar said.

"If you're not Yahoo or AOL, you have to work very, very hard to get in front of [advertising] buyers," said David Wilson, vice president of marketing for Deja News.

— Sharon Machlis

Online this week

Smart cards are coming

Though much more widely used in Europe than in the U.S., smart cards do a lot of database-access tasks even here.

www.computerworld.com/more



High school sophomore David Thelen explains what teen-agers really do online. **Opinion, page 33**



Broadcasting the Balkan conflict worldwide is a news Web site called Domovina Net, which features news reports from Kosovo and real-time audio broadcasts. **Internet Commerce, page 51**

In this issue

NEWS

- 6 Just-in-time flattens GM**, as strikers set off chain reaction in manufacturing giant.
- 10 Business apps require** more reliability, but ensuring uptime is expensive.
- 12 Legal issues continue to plague** Intel and Microsoft, as Windows 98 ships.
- 16 Sabre suffers** three-hour outage that halts business; it may switch vendors.

QUICKSTUDY

- 29 SET: Users want** secure E-commerce, but they delay adopting this standard.
- OPINION**
- 36 IS recentralizes fast** — and explaining that to business execs may not prove easy, Bill Laberis writes.
- 36 The Microsoft antitrust muddle** will help IS, David Moschella predicts.

TECHNICAL SECTIONS

CORPORATE STRATEGIES

- 49 Stock options complicate** mergers, though special software can help.
- 49 Career development rates** at the top of techies' job satisfaction lists.

INTERNET COMMERCE

- 51 Reseller offers to track and update** your software automatically.
- 51 Hacker insurance?** Users call it a marketing ploy.

ENTERPRISE NETWORKING

- 57 Network monitors watch** coolers, locked doors as well as the usual IT stuff.

YEAR 2000

Outsourcers seem to weasel on year 2000 work; fine print requires extra fees for fixes. **1**

World leaders call for action on year 2000 problem; poll reveals 23% of Americans are concerned about it. **8**

57 Gigabit Ethernet catches on.

SOFTWARE

- 59 ADP expects** a \$35 million systems project to pay for itself in two years.
- 59 Windows 98:** Corporate users should wait for NT 5.0, but power users might upgrade, reviewers decide.

SERVERS & PCS

- 65 For sale:** Small, used IBM mainframes.
- 68 Gateway 2000 is fined** \$402,000 for violating export requirements by shipping PCs to 16 countries.

DATA WAREHOUSING

- 71 Users are happy** that meta-data standards are emerging, with Microsoft and Oracle leading the charge.
- 71 A \$1 million** database marketing project at KeyBank paid for itself in 14 months.

FEATURES

MANAGING

- 76 IS managers should monitor** five key IT issues that face government.

CAREERS

- 84 The feds jump headfirst** into IS labor issues; some don't want them at the party.

ETC.

Company index	99
Editorial/Letters	32
How to contact CW	99
Inside Lines	102
Stock Ticker	98

View from the trenches: A DEA contractor worries that hard work will be wasted. **49**

Vice President Al Gore discusses the year 2000 hot seat the next chief executive will inherit. **74**



IBM adopts freeware Apache Web server

By Carol Sliwa

IBM'S ENDORSEMENT of the freely available Apache Group Web server — the most popular on the Internet — will provide an interesting option for corporations reluctant to use informally supported software.

Industry observers view the IBM plan as a smart move. But no one expects defections from the legions of corporate users who have already installed Netscape Communications Corp. and Microsoft Corp. World Wide Web server products — despite the allure of owning Apache's server source code.

"We have a fairly large investment in Netscape — not only code but the expertise," said John Swartzendruber, manager of enterprise architecture at Eli Lilly & Co. in Indianapolis. "The fact that IBM supports Apache probably wouldn't tip the balance in Apache's favor."

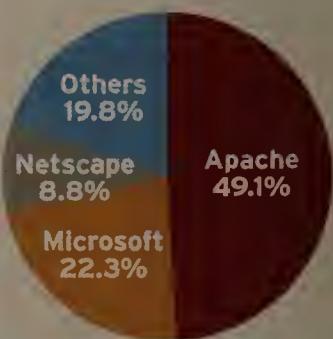
"I think it's great, as long as IBM doesn't take control of Apache," said Edward Bianco, chief information officer at Lowell General Hospital in Lowell, Mass. "But right now, I'm a big Microsoft shop, so it's hard for me to use it."

Because Microsoft's Internet Information Server comes bundled free with its Windows NT operating system, it has been the easiest option for many customers. But IBM customers may be more inclined to consider the Apache server.

For instance, McDonald's Corp. in Oak Brook, Ill., has been using Lotus Development Corp.'s Domino server, but the company plans to check out other products as it rethinks its "stick with one platform" strategy. "Apache could be in the running," said Aaron Wiltz, a technical analyst at McDonald's. "It'll be more seriously looked at because IBM will definitely be putting the support that they put behind all of their products."

IBM is making both Apache and its Domino Go Web servers available as part of its new Web-

Internet server market share



Base: June 1998 survey of 2.05 million distinct Web addresses

Source: Netcraft Web Server survey (www.netcraft.co.uk)

Sphere Application Server, but the product also will support Netscape and Microsoft Web servers.

IBM plans to offer support for the Apache server only for customers who purchase the WebSphere product, said IBM program director Nigel Beck. But, if the market dictates that IBM provide support for the Apache server to non-WebSphere customers, the company might consider it, Beck said.

Of course, customers could buy the WebSphere Application Server for \$795 to get support for Apache, even if they don't use WebSphere.

IBM plans to participate in the Apache Project in the same way other developers do: redistributing bug fixes and improvements to the informal group of programmers who developed and maintain the Apache software, Beck said.

IBM won't produce a "unique IBM version of Apache," Beck added, although it plans to add security features that Apache is prohibited from adding because of export controls.

Other companies have made similar additions, including C2Net Software, Inc. in Oakland, Calif., and Covalent Technologies, Inc. in Lincoln, Neb. □

& IBM's blessing of Apache bodes well for corporate users. See editorial, page 32.



Eli Lilly's John Swartzendruber says his firm has a "large investment in Netscape"



IS YOUR BACKUP TOUGH ENOUGH FOR THE JOB?

Is your critical data guarded by a puny backup solution that doesn't scale up? Backup Express™, new from Syncsort, is fast and powerful, designed specifically for today's distributed networks, where the data grows every day. Backup Express™ backs up and restores gigabytes of data fast—whether on UNIX, NetWare, or Windows NT. If you want a backup strong enough to keep your network data secure and bring it back fast, call us.

syncsort

Tel (201) 930-8200 dept. 68CWB
Fax (201) 930-8290 dept. 68CWB
<http://www.syncsort.com/68cwb>

Fast software rollouts keep users jumping

► *R/3 blueprints save time but rush decisions*

By Craig Stedman

RAPID DEPLOYMENT schemes put together by SAP AG and other enterprise application vendors can help streamline the notoriously thorny process of installing the software.

But users are finding that the fast-path methodologies best fit companies that want to slap packaged applications in place without making many changes to either the software or the way they do business.

And the compressed installation schedules can mean long hours and high levels of stress for business and technology managers who have to make configuration decisions with machine-gun rapidity.

Dexter Strong, information management manager at a medical devices maker in the Northeast, said SAP's AcceleratedSAP (ASAP) program helped his company install R/3 in just five months — and stay under its budget.

"It's a way of taking this big, unstructured and frightening process and breaking it down into a manageable thing that can be done quickly," said Strong, who asked that his company not be named.

NOT ENOUGH TIME

But fast doesn't mean easy. Strong and his staff still had to deal with all the complexity of R/3, and decisions on how to set up the software were "flying by fast and furiously," he said. And there wasn't time to make business process changes or deal with reporting needs up front.

Snap-On, Inc., a tool maker in Kenosha, Wis., hopes that The Baan Co.'s rapid deployment methodology will help accelerate a planned 1999 upgrade to the Dutch vendor's next software release.

But that depends on the project team's ability to persuade users to give up software alterations made when Snap-On first installed Baan's applica-

FULL SPEED AHEAD?

Users of rapid deployment methodologies from SAP and other vendors should:

- Schedule training early
- Assign key business managers to their project teams
- Give the teams authority to make their own decisions
- Put off major business re-engineering until later
- Watch that pressure and stress don't erode morale

tions, said project director Ed Roe. "We did more than our share of modifications, and we have to decide whether those are really necessary anymore," he said.

ASAP and rival approaches give users step-by-step blueprints, templates and other guidelines for hurrying through a software installation. The schemes began to appear last year and are gaining in use: SAP officials said about 75 users have finished ASAP-based R/3 rollouts, and another 200-plus are in the works.

A report released last week by Aberdeen Group, Inc. in Boston said 14 of 15 ASAP users it surveyed plan to use the methodology again. But the report added that ASAP "is not for the faint of heart" because of the pressure it puts on users to make important decisions so quickly.

Jill Wagner, ASAP product manager at SAP, said the German company this summer will test technology that points users to the R/3 tables relevant to their businesses instead of making them look through all 9,000 tables. By year's end,

SAP also plans to release a version of ASAP for global R/3 rollouts, she said.

But ASAP will still be aimed at users who want to install R/3 first and worry about changing the software or their companies later, Wagner said.

Lyle Smith, director of global human resources information systems at PPG Industries, Inc. in Pittsburgh, said the \$7.4 billion glass maker's ongoing rollout of Oracle Corp.'s human resources software to 88 sites is much too complex for a rapid deployment approach.

"With a large company like ours, you can't just take something out of the wrapper and implement it," Smith said. For example, PPG has to configure the software to support different training policies at each of its 38 plants, he said. □

MORE ONLINE

For articles and resources on ERP, visit [Computerworld online](http://Computerworld.com).

www.computerworld.com/more

Just-in-time technology put the brakes on GM line productivity

► *Worker strike closed 26 plants, could slow technology spending*

By Bob Wallace

WHAT'S GOOD for General Motors now has the company on its knees.

Just-in-time (JIT) manufacturing — a popular high-tech practice with most automakers today — turned out to be an effective tool in the arsenal of striking workers at two General Motors Corp. parts plants in Flint, Mich., earlier this month.

Once the company began to run out of parts, GM started idling plants until the bulk of them were closed.

When an automaker adopts high-tech JIT inventory practices, there is no "Plan B," industry analysts said last week. JIT manufacturing is intended to save money and boost production efficiency by keeping just a few hours or days' supply of parts on hand.

By striking, the United Auto

Workers set off a chain reaction that saw 26 of 29 North American plants closed, more than 140,000 workers laid off and estimated losses that top hundreds of millions of dollars.

If the strike continues, GM's technology spending could be slowed as well. "I don't think

we've delayed any IT spending [because of the strike] yet, but I can't say we won't ever," said a spokesman for the automaker's information systems group. GM is trying to cut costs as the strike drags on, he added.

GM's information technology budget is \$4 billion annually.



General Motors' workers man the picket lines. The strike has demonstrated the perils of just-in-time manufacturing processes, which most automakers have adopted.

Most U.S. automakers adopted JIT manufacturing practices to compete with foreign rivals, so it isn't a GM-specific problem.

Yet GM said that, upon reflection, it will stick with JIT.

"The benefits far outweigh the disadvantages," said GM spokesman Alan Adler. "[JIT] is an ingrained part of what we do. For example, we only keep a four-hour supply of seats on hand. When you have a disruption, the backup is almost immediate. But we're committed to JIT — warts and all."

"What GM can't afford to do is go back to a bloated parts supply inventory just to protect against a strike," said Tony Friscia, president of AMR Research, Inc., a manufacturing research and consulting firm in Boston. "And stockpiling parts in anticipation of a strike isn't a solution."

GM saves hundreds of millions of dollars with JIT, analysts estimated.

UAW STRATEGY

The UAW may have hand-picked the two Flint parts plants to strike as part of a strategic plan. "It was probably a factor, but I think the original driver was local issues," said Hal Stack, director of the Labor Studies Center at Wayne State

University in Detroit. "GM has other plants that make different components where a strike would also do serious damage."

UAW spokespeople didn't return multiple telephone calls last week.

GM couldn't have stockpiled enough parts to keep the plants running during a lengthy strike, Adler said. The company spends \$70 billion annually on parts from more than 30,000 suppliers, though one, Delphi, accounts for about 65% of that business, he added.

Analysts said GM should work more on labor relations as the solution.

"GM needs to realize that people are as important as raw materials," said Richard Henderson, an auto analyst at the Pershing division of Donaldson, Lufkin & Jenrette, Inc. in Jersey City, N.J. "What you want is happy employees because they don't strike." □

& Some manufacturers are turning to low-end planning products. Page 50

MORE ONLINE

For resources on just-in-time manufacturing, visit [Computerworld online](http://Computerworld.com).

www.computerworld.com/more

The Framework Is FREE. The Benefits Are Invaluable.

Time is money.

And, in today's competitive market, producing more with less has become something of a chorus for IT managers. But now there's an amazing new product that can solve your integration issues in a matter of days, rather than years. A state-of-the-art framework that manages your entire heterogeneous environment from a cross-platform perspective.

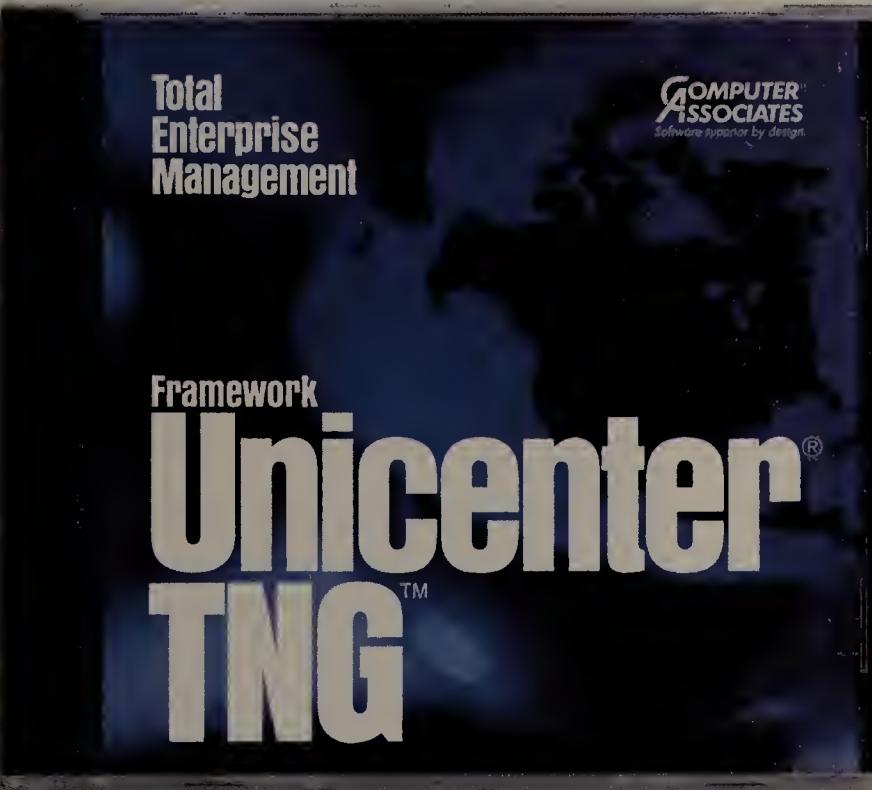
The Unicenter TNG Framework Saves You Time And Costs You Nothing.

The Unicenter® TNG™ Framework™ provides all the features you'll ever need to ensure a complete and robust enterprise solution. Distributed services, like an object repository, auto discovery, event and calendar management, reporting, and virus detection, as



Unicenter® TNG™ uses virtual reality to create a 3-D environment representing objects in the real world.

well as the revolutionary 3-D Real World Interface™ that incorporates virtual reality to help you navigate through your entire enterprise.



The Framework, in conjunction with Unicenter TNG, the world-class enterprise management solution, brings you a completely extensible infrastructure with more than 50 additional management functions.

And, with literally hundreds of third-party solutions available for the Framework, time is no longer a commodity. Plug your own management applications into the Unicenter TNG Framework, and take advantage of the world's most reliable and widely used core support service available.

Enhanced Enterprise Management Across Any Platform.

Why ask your development team to spend the next five years building new solutions from scratch, when you can use the Framework as your foundation?

With the Framework, out-of-the-box integration is a reality. Today, more than 15 companies are shipping the Unicenter TNG Framework with their systems.

Unicenter TNG Is Widely Recognized As The Industry Standard For Network And Systems Management.

Unicenter TNG is the most open, interoperable and scalable management solution available. It has been supported by virtually every major hardware and software company, including Microsoft, Sun, SAP, Intel, HP, DIGITAL, Tandem, NCR, SGI, and Data General. Peter Kastner from the Aberdeen Group recently summed it up when he said, "Aberdeen positions the Framework as the enterprise management entry-level user choice and *de facto* ISV platform choice."

	# Of Developers	Develop Time (mos.)	Person Mos.	With TNG Framework
2-D and 3-D User Interface	5	8	40	Available Now
Object Repository	8	12	96	Available Now
Auto Discovery	6	9	54	Available Now
Calendar Management	5	8	40	Available Now
Virus Detection	3	7	21	Available Now
Reporting	4	5	20	Available Now
Business Process Views™	6	7	42	Available Now
Event Management	15	18	270	Available Now
Delivery Timeframe			583	SHIP Today

Why waste time? Unicenter TNG Framework can save you countless months.

Call 1-888-UNICENTER Today For Your FREE Unicenter TNG Framework or visit www.theframework.com.

Why not call today and give yourself a FREE head start on your development schedule?

**COMPUTER
ASSOCIATES**
Software superior by design.

Unicenter® TNG Framework™

©1998 Computer Associates International, Inc., Islandia, NY 11788-7000. All product names referenced herein are trademarks of their respective companies.

Y2K worries rise for consumers

By Matt Hamblen

IN THE FIRST-EVER public opinion poll on the topic, 23% of the U.S. adults surveyed said they believe year 2000-related failures could cause some disruption in their lives, from mistakes in their financial records to losing their jobs (see chart).

That number is regarded as a high level of worry, considering the modest amount of general press coverage given to the issue, said Harris Miller, president of the Information Technology Association of America in Arlington, Va., which commissioned the poll.

On a global level, Ahmad Kamal, Pakistan's representative to the United Nations, said he will present a resolution to the U.N. this week that requires member states to explain by August what actions they are taking to

combat the millennium bug. Kamal's resolution also calls for creating a year 2000 trust fund to allow the World Bank to distribute financial aid to countries that need help.

Kamal joined other speakers and attendees at the World Congress on Information Technology in Fairfax, Va., in urging world leaders to sound an alarm on year 2000 — especially to push small businesses to fix their systems or have contingency plans.

Kamal said software vendors, government leaders and consumers are all to blame for the late start in fixing year 2000 problems. "We all stand guilty before Y2K," he said.

Meanwhile, the year 2000 glitch has become a hot political issue in the U.S.

Republican presidential hopeful Steve Forbes, addressing the

Of those who expect year 2000 problems, percentages who anticipate:

Distorted personal financial records	80%
Business losses	72%
Possible telephone disruptions	68%
Power outages	64%
Loss of jobs	56%
Product or service shortages	42%

Base: The 23% of 1,000 respondents who believe year 2000 failure will cause disruptions

Source: Information Technology Association of America, Arlington, Va.

Amdahl attacks mainframe software costs

► *Technology offers new options for licensing*

By Jaikumar Vijayan

CALL IT THE LATEST attempt to help users hammer down the historically high costs of mainframe software licenses.

Amdahl Corp. last week announced technology that gives corporations a way to upgrade mainframes — or consolidate applications on them — without incurring huge software license cost increases.

The Sunnyvale, Calif., vendor is addressing an issue that has long been a corporate nightmare: how to keep software licensing and maintenance costs in line while hardware prices continue to fall.

Big iron has plummeted from more than \$100,000 per MIPS in 1990 to around \$6,000 per MIPS today, ac-

cording to Meta Group, Inc. in Boston.

Yet software prices have continued to climb steadily and today can represent up to 50% of overall data center costs, said John Webster, an analyst at The Yankee Group in Boston.

SLOW GOING

When it comes to tackling license management, "Things overall are still moving at a snail's pace," said Roland Akosah, a senior information technology asset analyst at the Student Loan Marketing Association in Reston, Va.

In certain application environments, Amdahl's Multiple Server Feature (MSF) option could help firms knock off 20% to 30% from their annual software costs, Webster said.

1,500 attendees at the World Congress, chided Vice President Albert Gore Jr. for not speaking on year 2000. "Mr. Vice President, you're the administration's technology point man," Forbes said. "What have you been

doing for the past five years?"

But Gore did address year 2000 for the first time in a televised satellite address to the World Congress Wednesday afternoon.

Gore urged businesses to work with suppliers to make sure the year 2000 problem is solved. He recited what the Clinton administration is doing,

including the creation of the President's Year 2000 Conversion Council to guide private and government compliance. "Virtually every large and small business, every contractor and supplier has a stake in meeting this challenge," Gore said. "Let's do it now, so American business doesn't miss a beat when we reach the millennium." □

Tech gap could lead to class conflicts

By Matt Hamblen
FAIRFAX, VA.

THE INFORMATION TECHNOLOGY gap between industrialized and undeveloped countries could eventually trigger class struggles and mass protests, former Soviet President Mikhail Gorbachev warned in a speech here last week.

The chasm between the IT haves and have-nots was the central theme of the 1998 World Congress on Information Technology here, attended by 1,500 representatives of 90 countries.

COLONIALISM

In an address, Gorbachev said Third World intellectuals believe this gap is a form of Western expansionism or "electronic colonialism."

"As a politician and policymaker with some experience, I would not recommend that you dismiss such concerns," Gorbachev warned through an in-

terpreter. "Those of you who work in transnational companies certainly know that this gap carries a tremendous potential for conflict," he said.

In response, Michael Dell, chairman of Dell Computer Corp. in Round Rock, Texas, told reporters his company "feels a lot of responsibility to lower the cost of technology and provide it around the world." But he said there are limits: "We are capitalists."

"The only way to get prices down [worldwide] is competition," added Oracle Corp. Chairman Larry Ellison.

Acer Corp. Chairman Stan Shih announced plans for production of the Acer XC, a \$200 computer that the Taiwan-based vendor hopes to sell in markets such as China.

But Dell said people in devel-



Former Soviet President Gorbachev says the IT gap between industrialized and undeveloped countries could eventually trigger class struggles and mass protests

oping countries don't seem to want a \$200 computer. "When I go to China, they want Pentium IIs," he said.

The biggest obstacle to global Internet access is the deficient telecommunications infrastructure in Third World countries, several analysts said.

In some African and Asian nations, there is only one telephone line for every 1,000 homes, compared with nearly one for every home in the U.S., said Jeffrey Sachs, director of the Harvard Institution for International Development in Washington. □

from a small Unix server to IBM's S/390 mainframe would get slapped with a steep fee increase simply because the S/390's overall capacity is far greater than the Unix server.

One real-life example comes from a large Midwestern pharmaceutical company, which spent \$2.5 million last year on upgrading a 204-MIPS Amdahl Millennium mainframe to a 260-MIPS system.

Though all software running on the old system was moved to the new one, the upgrade was made mainly to accommodate a single, fast-growing application.

But because the new system is bigger, license costs shot up for all the software running on it. As a result, the company estimated it will end up spending an additional \$3 million on software in the next few years.

Amdahl's MSF plan differs in approach from the usage-based pricing models that a number of others advocate, including large system user groups such

as Guide International Corp. and organizations such as the Open Group and vendors such as IBM and Isogen Corp.

With usage-based pricing, users pay for software based on its use — instead of the system capacity. Acceptance has been slow because of lack of reliable tools that track software usage.

CLOSER TO AN IDEAL

But some asset management tools — such as Isogen's SoftAudit — have integrated software metering capabilities that "help us clearly articulate to vendors how much we are using a particular product and what we think a fair price ought to be" based on that usage, said Kevin Berry, a senior contract analyst at Norwest Service, Inc. in Minneapolis.

Such efforts are bringing users "to the point where you can more closely correlate the value you are getting from software to the price you are paying for it." □

Cisco is making billions running its business

on Oracle Financial and

Manufacturing Applications.

So, what are you
running on these days?



Cisco Systems is a global, networked business. As the

worldwide leader in networking for the Internet,

Cisco has rocketed to multi-billion dollar size in just a

few years. How does a fast-growing company

effectively manage its business? With Oracle Financial

and Manufacturing Applications. Cisco runs its

worldwide business operations on Oracle Financial,

Manufacturing and Order-Entry Applications.

What's more, all Cisco operations are managed off of

Oracle databases. Even customers and business

partners gain direct access to Oracle databases to improve

business efficiency. Oracle Applications have helped

Cisco cut costs, increase sales and add accuracy, speed

and flexibility to its business operations. Running

its business on Oracle, Cisco has become the most highly

networked business in the world. Give your business

what it needs to run more competitively.

Call 1-800-633-1062, ext. 13558, for a free CD and

learn how other companies move ahead with

Oracle Applications, or visit

www.oracle.com/info/4

ORACLE®
Enabling the Information Age®



Users face high cost for guaranteed uptime

By Jaikumar Vijayan

A SLEW OF fast-growing applications such as enterprise resource planning and electronic commerce are forcing information systems departments to pro-

vide ever higher levels of system and application availability.

Tapping in to the opportunity are several vendors with offerings aimed at letting companies do just that. But implementing some of those technologies

could be expensive, users cautioned.

Last week Hewlett-Packard Co. announced new partnerships and technologies in its campaign to deliver 99.95% guaranteed uptime to corporations on all the servers, networks and databases

the company supports.

On the network side, for example, HP is partnering with Cisco Systems, Inc. to guarantee HP customers less than five hours of unplanned network downtime per year. Similarly, HP and EMC Corp. have teamed to deliver a technology that lets users cluster systems up to 40 kilometers apart in a high-availability configuration.

Such technologies are important because "application uptime is a very crucial issue for us," said David Krauthamer, director of information technology at Advanced Fiber Communications (AFC), a Petaluma, Calif.-based telecommunications equipment maker.

ALWAYS UP

AFC spent the past six months putting in place a high-availability environment that includes redundant HP 9000 Unix database servers, clustered application servers, RAID arrays, mirrored storage devices and a long-distance fail-over capability to guarantee that the company's systems are available 24 hours per day, six days per week.

HP isn't alone in offering such technologies.

On the Unix side, firms such as Compaq Computer Corp. (through its acquisition of Digital Equipment Corp.) and NCR Corp. have similar technologies.

On the Windows NT side, vendors such as Microsoft Corp. with its Wolfpack clustering and Compaq with its fault-tolerant technologies from Tandem Computer Systems, Inc. are also vying for a piece of the high-availability pie.

While the appeal — and need — for such technologies is very high, so is the cost of implementing them, said the information technology director of a Seattle-based manufacturing company who asked not to be identified.

COST INCREASES

The company's systems are available roughly 99.3% of the time every year. It is trying to nudge that figure up to get even better reliability, but "every point above 99% becomes exponentially more costly to achieve," he said. Moving up from 99.3% to 99.5%, for instance, will mean investing in at least 300G bytes of additional storage from the existing 300G bytes and moving from RAID storage arrays to mirrored devices.

Another problem is that "all these announcements don't amount to much until users actually implement the technologies and get to see how they work," said John Williams, MIS manager at Priority Pharmacy, Inc., a mail-order pharmacy in San Diego.

The company needs its systems continuously for 17 hours per day, five days per week. For now, it relies on technologies such as off-the-shelf storage disks with 1 million hours of mean time between failures and redundant power systems to build in the reliability it needs.

"There are many small vendors out there with very reliable equipment we can use. So we don't have to go to any of the big vendors" and pay a premium for the technology, Williams said. □

No decision-making bottlenecks.

You can't simply pour on more general IT information to unclog the decision-making bottlenecks that block your company's critical technology strategies.

To create a clear IT advantage, you need a proactive resource that has its finger on the pulse of IT. A resource that can provide you with concrete recommendations and clear direction — in the context of your business. META Group is the only IT advisory and research company providing that kind of clear direction.

Sound refreshing? More than 1,400 META Group clients around the world think so. To learn more, call us at 1-800-945-META or visit us at www.metagroup.com/cw.

Satisfy your thirst for clear direction at META Group.

Fresh Thinking.
Relevant Answers.
Clear Direction.



Netscape

» NOW IN EVERY HEADLINE

KNIGHT-RIDDER'S

31 local daily newspapers were facing fierce new competition for readers and ad revenues. Was there a breakthrough way to deliver the news? We worked with Knight-Ridder New Media to help develop an electronic news clipping service, searchable classified ads, local sports and entertainment services – all of which helped them wring additional revenue from their papers. What made it possible? Netscape PublishingXpert and Netscape Enterprise server software. Today, there's no telling what business will break away from the competition with a Netscape solution. Learn more with a free information packet – call 888-200-5764 or visit home.netscape.com/breakaway



NETSCAPE®

FRANKLY SPEAKING

A little trust

FRANK HAYES

GOOD NEWS! You can stop worrying about the high cost of all those year 2000 fixes. The supermarket tabloid *Weekly World News* says the final battle of Armageddon will start on June 30, 1999 — six months before most companies will feel the full impact of 1999 turning into 2000.

That battle, and the resulting nuclear war, will wipe out all of humankind — along with any need to correct your millennial software problems.

What's that? You don't trust what a supermarket tabloid — whose editors also claim that space aliens are urging Rush Limbaugh to run for president — has to say about the millennium?

Then why do you trust what your business partners claim about their year 2000 readiness? Especially when most



companies aren't willing to tell the truth about their year 2000 situation — even when they're required to do so by law.

Earlier this month, Laura S. Unger, commissioner of the Securities and Exchange Commission, told a Senate subcommittee that publicly held companies simply aren't coming clean on their year 2000 plans, costs and risks.

No organization hides its year 2000 situation because it's under control.

The SEC requires that information in quarterly 10-Q and annual 10-K filings. But now companies claim either that they don't know or can't risk publicly discussing their year 2000 situations.

As if the prospect of a company that

could tank because it isn't year 2000-ready — and take its suppliers and customers down with it — isn't risky enough.

Let's face it: No organization hides its year 2000 situation because the problem is under control. Companies waffling or "misinterpreting" SEC disclosure requirements — heck, let's call it what it is, lying — are doing so because they know they're in deep trouble.

And if they're hiding the truth from the SEC, you can bet they're also lying to business partners like you.

Unger says that within a couple of months the agency will issue new, tighter guidelines that make it clear that year 2000 information isn't optional. That means we'll start getting meaningful information . . . oh, around the beginning of next year. And that's assuming the liars don't find some new loopholes to dodge the requirements again.

In the meantime, there is a way — a fairly simple way — to find out how trustworthy your business partners are.

Set up a joint test with each of them. Run transactions dated, say, July 4, 2000, through your systems to theirs

and back again. See what happens.

If the transactions fall apart on their end, you'll know you can't trust their systems. Of course, if they fall apart on yours, they'll know the same thing about your systems. If that makes you squirm, don't worry. Chances are, if you run that test now, it'll fail on both sides.

But you can turn that failure into the beginning of some real trust. When you both know each of you is year 2000-unready, you can work together. Coordinate your efforts — and cut the same corners — and you have a prayer of passing that test 18 months from now.

Will your CEO panic and your legal department have a fit at that kind of kimono-opening? Then let them draw up the nondisclosure agreements. When they balk, point out that the risk of not knowing your partners' year 2000 flaws is far greater than the risk of letting them see yours.

And remind them that it won't be the end of the world if you trust your business partners. But if you don't — and your business connections start to fail when midnight strikes on Dec. 31, 1999 — you may feel as if you're in the middle of Armageddon after all. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

SHORTS

Spiegel loses order system

Spiegel, Inc. lost its order-entry system for a day early this month because of "human error" by EMC Corp. technicians moving Spiegel data to new storage devices, a spokeswoman for the Westmont, Ill.-based retailer confirmed. Sales agents took incoming orders with pen and paper June 7, while Spiegel's IS team worked to restore the system. It took five days to fully restore from off-site backup tapes, but no orders or customer data were lost. A rumor that Spiegel threatened to sue EMC over the incident isn't true, she added.

Airline grounds Web site . . .

American Airlines added personalized features to its Web site last week but had to go back to the hangar when it drew more visitors than expected. The Dallas-based airline was forced to take the site off-line for most of the first day to reconfigure the hardware so that it could better handle the traffic volume, which it declined to estimate. The site added features that let the airline's 31 million frequent flyers look up their accounts, get targeted discounts for cities they frequent, make reservations and get special fares. American's Sabre reservation system had problems, too.

. . . but flies with Windows 98

On the desktop side, American Airlines may be one of the first companies to back up some observers' theories that Windows 98 could turn out to be a corporate sleeper success. The airline plans to upgrade thousands of PCs, most of them now running Windows 3.1, to Windows 98 later this year. Microsoft is pushing Windows NT rather than Windows 98 for the corporate market, but Windows NT requires newer hardware and more training and doesn't support 16-bit applications.

Microsoft hit with bug lawsuit

Microsoft Corp. was hit with a class action lawsuit last week in which it was accused of fraudulently misrepresenting the features of Windows 3.1, Windows 95 and Windows NT. The products contain many "vices and defects" because of inadequate testing, according to the suit, which was filed in Louisiana. The plaintiffs in the suit seek compensatory, exemplary and punitive damages. All Microsoft products are tested for "hundreds of hours" before they ship, a Microsoft spokesman said.

GOP whacks year 2000 funds

The House Rules Committee last week cut more than \$2 billion from an emergency reserve for government year 2000 projects, even though many Republicans in the GOP-controlled House have been the most critical of federal preparations. The Senate Appropriations Committee had recommended funding. House members voting for the cut said they were worried about balancing the federal budget but are sympathetic with year 2000 needs.

High-tech layoffs continue

Corel Corp. will cut more than 340 jobs as it consolidates its Orem, Utah, research and development facility with operations in Ottawa and Dublin, Ireland. The move, designed to prod the company's expected return to profitability, will save Corel \$33 million a year, executives said. Corel lost \$8.3 million on sales of \$63 million during the second quarter of this year. And citing slow end-user sales of its PC software, Quarterdeck Corp. in Marina Del Rey, Calif., last week said it will cut its staff, though it declined to say where or by how much.

Microsoft's new temp policy

Starting this week, Microsoft will require temporary workers to leave the company for 31 days after they complete an assignment of a year or more. A Microsoft spokesman said the move was designed to clarify the company's relationship with temps and is common practice among firms that rely on contract workers. In the past, Microsoft was sued by long-term contract workers, who won the right to participate in the company's 401(k) retirement savings plan and buy Microsoft stock at a discount.

House eyes women in high tech

The U.S. House of Representatives last week passed the Women in Science Engineering and Technology Development Act. The bill now goes before the Senate Education and Workforce Committee. If it passes, it would allocate \$750,000 to study the barriers women face in entering high-technology fields. A 1997 survey by the U.S. Department of Education, released this spring, shows that women account for only 23% of all computer science degrees, down from 27% in 1996.

SHORT TAKES Dell Computer Corp. is expected this week to announce an enterprise management strategy for its desktops and servers. The company would be following closely on the heels of a recent IBM announcement for desktop and server management. . . . The U.S. House of Representatives has approved a proposal to impose a three-year moratorium on new state and local Internet taxes; it now heads to the U.S. Senate. . . . House Speaker Newt Gingrich, (R-Ga.) last week created a task force to address the year 2000 problem; it will serve as the House's counterpart to the Senate Special Committee on Year 2000.

Make It Consistent.

Make It Reliable.

Make It Quick.



The SAS® Data Warehousing Solution

Making it Easy to Deliver the Right Data...to the Right Decision Makers

So much business data. Scattered in so many places throughout your company. Is it any wonder you find it difficult to provide access to consistent, reliable, and timely information to fuel effective decisions? The SAS Data Warehousing Solution—from the world's leading decision support provider—helps you meet the challenge.

What's more, we'll guide you every step of the way—from getting started to managing your data warehouse. One solution brings you the approach, technology, and resources you need. We'll provide the entire solution, or integrate easily with your existing technologies.

The SAS Data Warehousing Solution lets you provide a *single* version of the truth to your entire business community...as you make optimal use of your existing hardware, software, and data.

The Data Warehousing Product of the Year

See for yourself why 200,000 IT managers named the SAS solution their Data Warehousing Product of the Year...for two years running. Visit us at www.sas.com/dw for more information and to request a free SAS Data Warehousing mouse pad.



Data Integrity and Quality

Seamless Integration
and Process Automation

Maximum Return
on Investment

Strategic Partnerships

Step-by-Step
Implementation

Web Enabled

Year 2000 Compliant

SAS® SAS Institute Inc.
The Business of Better Decision Making

E-mail: cw@sas.com

www.sas.com/dw

919.677.8200

In Canada phone 1.800.363.8397 SAS is a registered trademark of SAS Institute Inc. Copyright © 1998 by SAS Institute Inc.

WINTEL'S WINS AND LOSSES

Intel's days in court

► Chip maker battles Intergraph, FTC suits

By April Jacobs

INTEL CORP.'S legal team last week was hard at work, shuttling between motions filed in two lawsuits.

In a civil case filed by Huntsville, Ala.-based Intergraph Corp., a federal judge refused to lift a preliminary injunction and set an October hearing for Intel's request for a summary judgment.

Separately, the chip giant also asked the Federal Trade Commission to clarify its charges, which allege that Intel uses its monopolistic status to harm its rivals. Both cases essentially accuse Intel of using its monopoly status to play hardball with rivals and users. □

Microsoft wins small, potentially crucial victory in antitrust suit

By Kim S. Nash

TWO DAYS BEFORE the official launch of Windows 98, Microsoft Corp. won a round in its continuing battle with government lawyers. The victory wasn't part of the antitrust case the U.S. filed in May, but it could change how that case

plays out, legal experts said.

A U.S. District Court of Appeals last week said a lower court judge made a handful of substantive and procedural mistakes, one of which was forcing Microsoft to let PC makers remove its browser icon from Windows 95. That order, which was in the government's first,

more narrow case against Microsoft, was reversed last week. Two of the three judges on the appeals court also created a test that found that Windows 95 and Internet Explorer are one, integrated product (see story at left). A third judge dissented, saying a decision about the integration question could be made only after hearing more evidence from both sides.

Last Tuesday's ruling was in a narrow suit filed last fall that charged Microsoft with violating its 1994 consent decree with the government by bundling its browser with Windows 95. But the decision will also affect how Microsoft and the U.S. fight their larger antitrust case in September, legal experts said.

"I won't say it's a fatal blow, but it's a major, major blow to the [government's antitrust] case," said Robert Lande, an antitrust law professor at the University of Baltimore in Maryland.

That's because the question of whether Microsoft can legally meld its browser into the Windows operating system is a key part of the antitrust suits filed in May by the U.S. Department of Justice and 20 states, Lande said.

"The court is saying the con-

The 'integration test'

A U.S. District Court of Appeals last week created a test to assess whether a product is integrated. Microsoft loved the test, but some legal experts criticized it as simplistic.

The court said a product is integrated if two previously separate products, or sets of features, "combine functionalities . . . in a way that offers advantages unavailable if the functionalities are bought separately and combined by the purchaser."

Integration is more than a "bolt of two products together," the court said. The resulting product "must be better in some respect" for the buyer.

Microsoft's top lawyer, Bill Neukom, called it a "practical and sensible test" that Microsoft passes easily.

But the dissenting judge, Patricia Wald, disliked the test.

The test "would seem to permit Microsoft to 'integrate' word-processing programs, spreadsheets, financial-management software and virtually any other now-separate software product into its operating system by identifying some minimal synergy associated with such 'integration,'" Wald wrote.

The test doesn't seem to take into account a past U.S. Supreme Court ruling in an antitrust case that applied other measures for determining integration, such as whether there is a separate market for each product, said Eleanor Fox, an antitrust law professor at New York University. — Kim S. Nash

Windows 98 hits the streets

Amid much fanfare and hype — with parades, block parties and giveaways at computer stores — Microsoft Corp. last week rolled out Windows 98, its upgrade to the Windows 95 operating system. Windows 98's most heavily touted features include faster application load times, support for new technology such as Universal Serial Bus and an embedded Internet Explorer browser.

Announcement highlights included the following:

■ At the actual unveiling in San Francisco, Microsoft Chairman and CEO Bill Gates said he expects Windows 98 to help fuel the consumer Internet market by virtue of its embedded Internet Explorer browser. He predicted that 60% of U.S. homes will have computers by 2001 and that 85% of those will be Internet-connected.

■ Microsoft officials said 120,000 copies of Windows 98 were ordered before the product shipped. That figure would make it the top seller if it were matched on a monthly basis. Original equipment manufacturers plan to wait until mid-July to offer corporate desktops equipped with the new operating system, and many will offer Windows 95 as an option for at least another year.

— April Jacobs



THE ASSOCIATED PRESS

WHAT THE RULING SAYS

Last week's decision focused on the smaller consent decree suit against Microsoft, not the larger antitrust suit filed last month



■ Windows 95 and Internet Explorer are one, integrated product

■ Microsoft no longer has to allow PC makers to remove the Explorer icon from Windows 95 screens

■ Lawrence Lessig, the Harvard special master appointed to study the technology issues in the case, is out

sent decree permits Windows 95/Internet Explorer as a legitimate product. So if you can do it in Windows 95, why not Windows 98? That's a pretty telling argument," said Terry Moritz, a litigation lawyer at Goldberg Kohn Bell Black Rosenbloom and Moritz in Chicago.

STILL CONFIDENT
The Justice Department said in a statement that it is "disappointed" about the ruling and is "reviewing the opinion to assess our options." But it remains confident in its antitrust case, the statement said.

No settlement talks are under way in either case, Assistant U.S. Attorney General Joel Klein later told reporters.

What happens next in the consent decree case depends on the government. It can appeal the appeals court ruling to the U.S. Supreme Court or let it lie as Justice focuses on its bigger battle against Microsoft. That trial is slated to start Sept. 8.

The appeals court also dis-

missed Harvard University Professor Lawrence Lessig, the special master appointed to advise the judge on the technology issues in the case. The court didn't say he was biased, as Microsoft claimed, but simply unnecessary.

Microsoft seized on the ruling. "This is a great day for consumers and a great day for everyone who cares about the future of the high-tech industry," said Bob Herbold, Microsoft's chief operating officer. But the decision may not be the gift to Microsoft it appears to be, said Eleanor Fox, an antitrust law professor at New York University in New York.

It is one opinion in a narrow case, Fox said. By contrast, the Justice Department, in its larger case, has charged Microsoft with a pattern of anticompetitive behavior devised to "frustrate" user choice, she said. "The government is setting about making a case that Microsoft wanted to squeeze out Netscape," she added. □



Will The Year 2000 Have Any Impact On Your Environment?

Choose the wrong vendor and it could sink your entire enterprise.

At Computer Associates, we've leveraged over two decades of experience in building tools for applications development, maintenance, and migration to create an award-winning solution for your year 2000 problems.



CA-Fix/2000™ tool automatically fixes COBOL code, one application at a time. It's the only tool with intelligent data flow analysis providing the high speed, high volume fix for year 2000, that you need today.

Behind our CA Discovery 2000 solution stands a Professional Services

team that is experienced in all aspects of year 2000 compliance. After all, as the world's leading independent software company, we have more experience re-engineering legacy applications than anybody. And with a 21-year track record of success and over \$4 billion in revenue, our clients know we'll be around long after the year 2000.

Preparing your application for the next century may be the most important job you've ever faced. Start now and turn the biggest challenge of your career into a triumph.

**Call us today toll-free
at 1-888-4-2000YR
or visit www.cai.com**



**COMPUTER®
ASSOCIATES**
Software superior by design.

Slow acceptance for V.90

► Users not upgrading 56K modems, so vendors play waiting game

By Kim Girard

FOUR MONTHS AFTER the V.90 modem standard was tentatively approved, corporate users are still tackling confusing upgrades. And some are saying "no thanks."

With last year's conflicts among modem vendors finally quelled, "there was a feeling that once [the V.90] standard was set, problems would go away," said Abner Germano, an analyst at International Data Corp. in Framingham, Mass.

But that hasn't happened. Instead, Internet service providers struggle to gauge how quickly they should upgrade their own equipment to V.90. They are trying to keep pace with customers who are wringing their hands over how to upgrade and what to buy.

John Minnick, manager of technology development at Siemens Energy and Automation in Atlanta, said he would prefer to skip the 56K upgrade for his 1,000 remote users.

"The question is: Can we jump to ADSL and cable?" he said. "Then V.90 becomes obsolete before it's standardized."

Asymmetric Digital Subscriber Line provides high-speed (8M bit/sec.) access over telephone lines by using digital coding.

V.90 enables modems made by 3Com Corp. to interoperate with Rockwell International Corp.'s and Lucent Technolo-

MODEM UPGRADE FACTS

- Most modem manufacturers offer free upgrades to the V.90 standard for users with 56K bit/sec. modems using 3Com's X2 (Cirrus, Logic, Hitachi) or Rockwell/Lucent's K56flex (Hayes, Motorola, Microcom, Multitech) technologies.
- Some 33.3K bit/sec. modems can be upgraded to 56K bit/sec. for a fee
- For a list of manufacturers' 56K information pages, go to www.sirius.com/~rmoss/#manufacturer

gies' K56flex technology. Although most Internet providers won't run V.90 code until late summer or fall, UUnet Technologies, Inc. last week said it is upgrading 700 points of presence to the standard.

But to access the V.90 standard, users need to upgrade existing modems. That may mean a wait, and in some cases, the modems can't be upgraded.

UPGRADES MAY BE ANSWER

According to Dataquest, about 34% of users in North America have upgraded to 56K, up from 11.9% last year. Upgrading promises faster access to the Internet — up to 53K bit/sec. The majority of users, on average, will only squeeze out speeds "in the low 40s," said Dataquest analyst Lisa Pelgrim.

Modems are controlled by two types of memory chips. Flash memory can be updated using a simple software download that is cheaper but can't be upgraded unless the hardware is switched. Many K56flex modems lack the memory to be upgraded, and analysts said there have been other headaches, also. Soon after 3Com began shipping V90 modems, for example, bugs were found that left those modems unable to connect in X2 mode.

Yet upgrades for some modems won't be available for several months, according to vendors. Though 56K modems were first rolled out in March of last year, a final V.90 interoperability standard won't be ratified until at least September.

Some vendors, including Dell Computer Corp., are telling customers that the 3Com upgrades currently available might not work with all modems installed in Dell PCs.

The confusion makes it difficult for information technology managers to track upgrade dates, so some simply let users do the download or invest in 56K modems themselves.

"Corporations are slow to adopt when there are proprietary standards," Germano said. "Modem pools are a big investment."

That's one investment State Farm Insurance in Bloomington, Ill., isn't ready to make. "I'm guessing there are people in our organization trying to get to intranet sites, and they are probably wishing we had 56K, but I haven't heard from them," said Craig King, network services manager at State Farm, which has 5,000 remote users. The company is investing more money in its servers for now, he said. □

pinch if they are planning large purchases from top-tier vendors, he said.

Because most corporations aren't investing in major notebook upgrades until 2000, when Windows NT 5.0 is scheduled to be released, Giusto said he expects the impact will be minimal.

In the meantime, notebook makers are considering alternatives to LCD panels, including lighter plastic-based screens, which aren't yet ready for use.

—Kim Girard

MORE ONLINE

For information on 56K and other modems and the V.90 standard, visit [Computerworld online](http://www.computerworld.com/more).

www.computerworld.com/more

LCD shortage expected soon

A SALES SLUMP in the worldwide notebook PC market should offset an LCD screen shortage expected by year's end.

Recently revised expectations for this year's worldwide notebook sales show a sizable drop from the 18% growth predicted in May to a more likely 11% or 12% for the year, according to International Data Corp. in Framingham, Mass.

That notebook sales slump,

which is driven by the Asian financial crisis, is expected to dampen the impact of the LCD panel shortage that is expected as manufacturers make the transition from 12.1-in. to 13.3- and 14.1-in. displays, said Randall Giusto, an analyst at the Framingham, Mass., consultancy. "If the economic problems in Asia improved, the problem would be bigger," he said.

Companies could feel the

Storage snafu grounds Sabre for three hours

By Kim Girard

TRAVEL SYSTEMS GIANT The Sabre Group may consider replacing part of its high-end IBM data storage system because of last week's three-hour outage, which delayed flights and froze reservations nationwide.

The system crashed at 6:34 a.m. Wednesday, leaving travel agents and airlines without access to the widely used Sabre airline reservation system.

"This is the lifeblood — our system," said Jennifer Hudson, a spokeswoman for The Sabre Group in Fort Worth, Texas.

Hudson said, for reasons not yet known, a circuit breaker tripped at Sabre's data center, which is located underground at the Tulsa, Okla., airport.

That cut the power to a high-end IBM Ramac disk system

and crashed the network.

Despite "double and triple" redundancy throughout the network, the IBM storage system failed to switch over to another power feed, Hudson said.

CONSIDERING A SWITCH

"We thought it would move to a different power source, and that didn't happen, so we're looking at other vendors," she said.

But Chris Saul, an IBM enterprise systems consultant, said it is more likely that Sabre's uninterruptible power supply failed — not the IBM Ramac system.

About 50 Sabre customers — including American Airlines, Midwest, Pacific Air and Air Canada — were affected by the outage, along with travel agents in more than 40,000 locations. □

Module helps users in busy modem pool

By Patrick Dryden

CUSTOMERS AND USERS get hot when they can't get in the pool — the modem pool, that is.

Busy signals, crowded communications servers and modem glitches are more than techie issues for information systems gurus. They mean lost sales and missed deadlines.

To help both IS and business managers detect such problems, Concord Communications, Inc. in Marlboro, Mass., will offer a new option this week for its Network Health performance analysis and reporting software.

NEW INFORMATION

Beta testers of the remote access module for the popular monitoring tool said it revealed usage trends, connection problems and other information they previously didn't have.

Concord's remote access module profiles daily use of each communications server for the first time, said Bob Thibodeaux, network systems administrator at Crane Eldec Corp., a Seattle-based aerospace engineering firm.

Understanding actual capacity needs "allowed us to change our dial-up strategy, preventing an upgrade," Thibodeaux said. "We can trade in two main [communications] servers for one faster model."

For service provider Frontier Communication Corp., the new module "let us predict overloading for modem pools and spot one modem out of thousands that is going bad," said Mike Butler, a network analyst at the Rochester, N.Y.-based company.

"We must have open lines, healthy modems and available network connections so our customers don't [go to] competitors."

— Mike Butler

Frontier Communications

"We must have open lines, healthy modems and available network connections so our customers don't [go to] competitors," Butler said. The remote access module costs \$6,000 for the Unix or Windows NT version.

And it requires the Network Health server, which costs \$10,000. □

51 issues for \$48.00 ~~\$39.95~~

Yes, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of \$39.95* per year - a savings of \$8.05 off the basic subscription price.

First Name **MI** **Last Name**

MI **Last Name**

Title

Company

E-mail address

Address

City _____ **State** _____ **Zip** _____

State _____ **Zip** _____

Address Shown: Home Business New Renew

U.S. Only. Canada \$95, Mexico, Central/South America \$150, Europe \$295
all other countries \$395. Foreign orders must be prepaid in U.S. dollars.

10. The following table shows the number of hours worked by 1000 workers in a certain industry.

B2F8 Z



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 55B MARION OH

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P O BOX 2044
MARION OHIO 43306-2144



**Like we've been saying all along,
there's practically no difference between
our servers and theirs.**

**Compaq®
ProLiant 5500**

**10,526 tpmC
\$33.95/tpmC**

TPC-C Benchmark Results
February 9, 1998

**IBM®
Netfinity 7000**

**11,078 tpmC
\$38.44/tpmC**

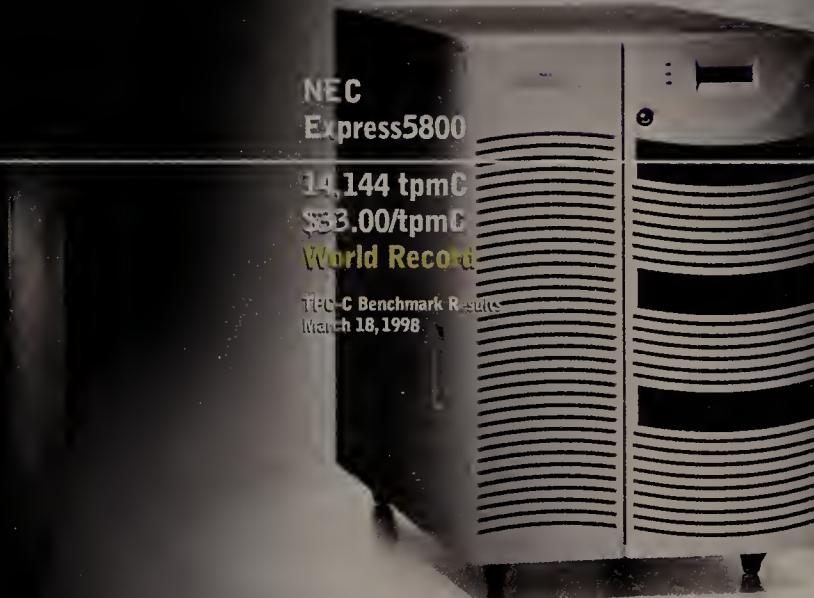
TPC-C Benchmark Results
April 8, 1998

**NEC
Express5800**

**14,144 tpmC
\$23.00/tpmC**

World Record

TPC-C Benchmark Results
March 18, 1998



Unless you think performance, scalability and price make a difference.

After all, NEC achieved world record TPC-C benchmark performance and price/performance levels for its four-, six- and eight-processor servers. As a nearly \$40 billion industry leader, NEC uses its extensive knowledge of Intel architecture and the Microsoft® Windows NT® platform to create optimized and reliable servers for a wide range of workgroup, departmental and enterprise applications.

What's more, they're likely to cost less than their nearest competitors. So if you're looking for a server partner, it's easy to see the difference NEC servers can make.

Call us at 1-888-863-2669 or visit us on the Web at www.necnow.com.



Express5800™ Server Series

- One to six processors for optimal scalability
- Intel Pentium® II, Pentium Pro, and Pentium II Xeon™ processors for advanced operation
- Certified to run Microsoft Windows NT and Novell® Netware®
- Error-correcting memory throughput for improved reliability
- RAID storage options for maximum throughput and reliability
- High capacity disk options for increased I/O capacity
- High availability features for critical application deployment
- Flexible rack and floor chassis options for flexible deployment
- Includes ESMPro™ Server Management Suite for proper manageability
- Includes three year on-site warranty at no additional cost
- Prices start at \$1797

JUST BECAUSE WE DIDN'T INVENT THE DATA CENTER SERVER

DELL
PowerEdge
6300

DOESN'T MEAN WE CAN'T REINVENT IT.

INTRODUCING THE DELL® POWEREDGE® 6300 SERVER

Here's a novel idea. Not only will we custom build your Dell PowerEdge 6300 server from the ground up, we will continue to help you manage it even after it's installed.



The PowerEdge 6300 features a hot-pluggable design that allows you to replace the hard drive, PCI cards, power supply and redundant CPU cooling fans without ever taking the server down. That's availability.

This server also grows with you. It can accommodate up to four Pentium® II Xeon™ processors, 4GB of ECC memory and seven hot-plug ready PCI slots. That's scalability.

And, Hewlett Packard's OpenView Network Node Manager Special Edition and our optional Dell Remote Assistant Card-2 help you keep your network running smoothly, both remotely and locally. That's manageability.

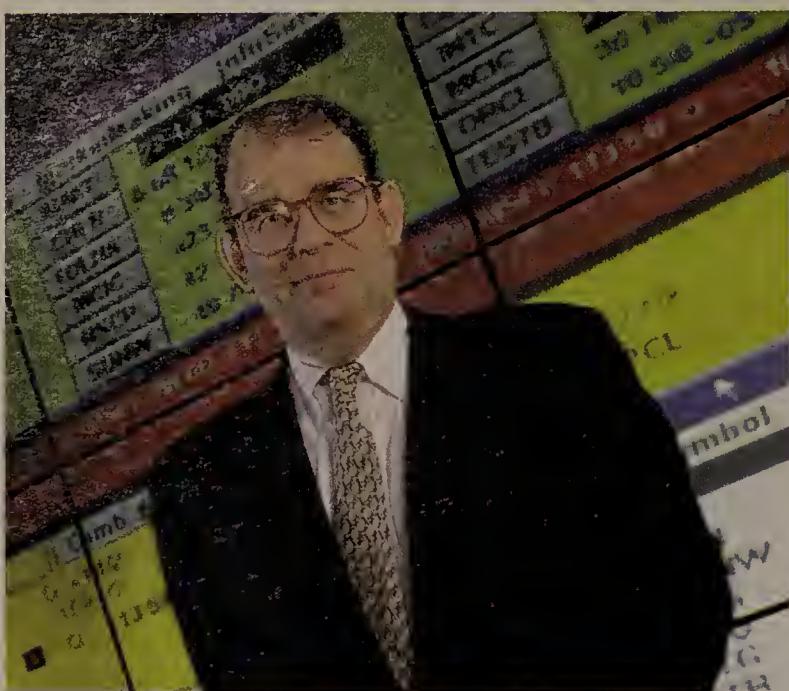
So now you know the PowerEdge 6300 is more than capable of handling your data center computing needs, but here's the best feature. Peace of mind. Dell will be there to back up this server 24 hours a day if anything should go wrong. And that's our promise.

Call Dell today and we'll take care of you. 1-800-232-2033



BE DIRECT™ **DELL®**

www.dell.com



Nasdaq's Alfred R. Berkeley III: "If we don't make [the Web] our friend, it becomes our enemy"

Stock markets: no rush to Web

By Thomas Hoffman
New York

JOE Q. PUBLIC can buy and sell stocks over the Internet. But when will the major stock exchanges begin to process trades over the 'net?

The answers are "now" and "no time soon" depending on whom you ask.

Securities industry executives last week clashed over that topic during a panel discussion here at the annual Securities Industry Association (SIA) Technology Management Exhibit & Conference.

The Nasdaq Stock Market currently handles a small portion of its daily trading volume over the World Wide Web. Handling orders over the Web "is the right structure," said Alfred R. Berkeley III, president of the Washington-based electronic market.

RESISTANCE

Nasdaq's chief rival — the New York Stock Exchange — doesn't process orders via the Web. Nor does it have near-term plans to do so, even though about 90% of its daily orders are routed electronically.

Trade processing over the Internet "is not ready for prime time" because of security and capacity problems, said Robert C. Lutz, group executive vice president at the NYSE.

But plans to last October, when NYSE trading hit record

volumes at 1.2 billion shares traded in one day. Although NYSE's systems didn't even come close to reaching capacity, discount brokers like Charles Schwab & Co. struggled to execute customers' trades as telephone lines jammed, Britz said.

Web-based stock trading "has been more of a retail phenomenon" with lesser interest among institutional customers to execute orders over the 'net, said Duncan Niederauer, a managing director at investment firm Goldman, Sachs & Co. in New York.

THE INEVITABLE

Nevertheless, Niederauer said he is convinced that stock markets such as the NYSE "will be pushed" into processing orders over the 'net as the volume of Internet-based trading continues to swell.

Last year, 17% of all retail stock trades were executed over the 'net, and the number continues to grow, said Marc E. Lackritz, president of the SIA, an industry trade group based in Washington.

That kind of growth is leading to lowered use of intermediaries such as brokers, as online-oriented niche players siphon off business historically handled by full-service brokerages and stock exchanges.

"If the [stock] markets don't process trading over the 'net, someone else will," Niederauer said. □

Data access tools extend reach

► Prove less costly, easier to install than warehouses

By David Orenstein

BY CORRELATING clinical data on appendectomy results with the use of surgical supplies, Columbia/HCA Healthcare Corp. can avoid buying more supplies than it needs.

The 330-branch hospital chain had to stitch together its own system to assemble such data quickly from disparate sources. But off-the-shelf systems that provide a single view of information from different sources are becoming increasingly popular.

Users and analysts said those data access tools aren't necessarily alternatives to more powerful data warehouses. But they can be implemented quickly and less expensively because they can leave the data where it is. Those tools also can be used for data extraction, migration and transformation.

"This is definitely a market that is to be reckoned with and is also growing," said Jeanine Fournier, a senior analyst at Aberdeen Group, Inc., a Boston research firm.

Ed Acly, an analyst at International Data Corp. in Framingham,

Mass., agreed. He said that although demand isn't great because of the newness of the market, "in time that will happen."

Columbia/HCA's mostly homegrown system lets it manage a wealth of data that ranges from clinical to financial to administrative to patient records. Data at each hospital is report-



Jeffries & Co.'s Russ Lewis:
Data warehouses more versatile and powerful

ed to separate databases at the central office, said Jeff Prescott, a spokesman for the company.

But other companies have begun to look to commercial packages to do the job that Columbia/HCA's stitched-together system does.

FMC Corp., a maker of chemicals and equipment for agriculture and industry, earlier this year began to use ISG Navigator software from Burlington, Mass.-based International Software Group, Inc. to quickly solve disparate data dilemmas.

ISG Navigator gave workers quick access to data residing in a wide array of platforms and databases, said Ralph Taeuber, technical services manager at FMC. Sales representatives, for example, can access the FMC intranet and simultaneously retrieve parts availability information from one database and call up engineering schematics from another.

Ashburn, Va.-based Entworks, Inc.'s Virtual DB also queries data where it resides instead of requiring users to set up working from a data warehouse or mart first.

Systems such as Virtual DB aren't as powerful or versatile as a full-fledged data warehouse might be for Jeffries & Co., said Russ Lewis, chief information officer at the Los Angeles investment bank. But the company uses Virtual DB to generate reports on customer accounts from several data sources, including legacy databases. □

Bug fixes bog down Intel Xeon rollout

By April Jacobs

INTEL CORP. TODAY plans to usher in its Pentium II Xeon chip, which is widely viewed as the end of the road for the long-lived Pentium Pro. The upshot for users is significantly better performance and lower price per server.

But, not all is expected to go smoothly. The company announced last Thursday that some of the server-based systems could be delayed by several weeks because of a last-minute bug fix in one of the chip sets, dubbed the 450NX.

With clock speeds of 400 MHz and initial support for up to four processors, the new chip will be used in systems targeted at high-end workstation users and Windows NT database and World Wide Web servers.

The Pentium II Xeon runs at least at double the clock speed of Pentium Pros and can accommodate two more processors per server than Slot I-based Pentium II machines. Xeon-

based servers also will support 64-bit Peripheral Component Interconnect slots vs. 32-bit slots in Pentium Pro machines. That will allow for better throughput, said Joe Barkan, an analyst at Gartner Group, Inc. in Stamford, Conn.

Some OEMs may choose to scale their machines to eight processors with their own chip sets, but the initial offering from Santa Clara, Calif.-based Intel supports up to four.

"On a four-way Xeon system, you can get better than or equivalent performance to an eight-way Pentium Pro," Barkan said.

POWER TRIP

Users like the idea of getting more power out of a single box.

"We are jamming multi-processor boxes in for access to client/server applications and the Internet already, and everybody wants the flexibility to be able to scale up," said Brian Brumit, a director at Coopers & Lybrand LLP in Princeton, N.J. Brumit said he thinks Pen-

tium Pro-based systems will be ushered out quickly in corporate environments — as soon as applications are fully tested.

Xeon pricing may not be cheap, but that isn't unusual for introductory high-end Intel-based systems. The chips are being sold to OEMs for about \$1,100 to \$2,800 for 400-MHz chips with either 512K bytes or 1M byte of Level II cache.

Barkan said pricing for the initial rollout wasn't as much of an issue as was the pricing for chips slated to be delivered by the end of the year with 2M bytes of cache.

Intel also will offer 450-MHz Xeon chips by year's end. Most OEMs that plan to roll out Xeon-based systems are aiming for fall ship dates. Compaq Computer Corp. plans to deliver Xeon-based servers in the third quarter, with initial offerings of 400-MHz machines. NCR Corp. plans to deliver Xeon-based systems this fall in 400- and 450-MHz configurations. □

YOU STORED THE CORPORATE DATA IN A PLACE ONLY HALF THE COMPANY CAN GET TO.

You may pry. You may strain. You may work your knuckles to the bone. But sometimes getting the information you need,

when you need it, is something akin to pulling a molar from the mouth of a rhino. Our suggestion? The Intelligent Storage Network™

platform from Sun. A new approach to storage where the network acts as the unifying element



for keeping and distributing information. No more isolation. No more barriers between you and what you

want. It's something storage islands just can't promise (no matter how many you string together). The way we look at storage also



helps you plan more easily for the future. Our building-block style lets you buy just what you need—no more—and allows you to

add as those needs grow. The result is faster access, simplified management and feeling less need to buy big iron tools. For a Sun™

reseller or representative near you, call 800-SUN-FIND or visit us at sun.com/storage/cpw. THE NETWORK IS THE COMPUTER.™

MAY WE OFFER SOMETHING FOR THE OTHER HALF?



Microsoft SQL Server. There's an exciting new concept in the world of eCommerce. Results.

Whenever you hear about eCommerce, you hear a lot about its potential. Which is fine, if all you want is potential. When companies drive their sites with Microsoft® SQL Server™, you hear about results. From international corporations to business-to-business suppliers, from the world's largest online retailers to electronic finance, Microsoft SQL Server is trusted to run the most demanding eCommerce sites.



Security: www.dell.com. Start at the top. Dell® Computers is the most profitable eCommerce site on the Internet. Recording \$5 million in transactions every day, and growing, with more than 800,000 hits per week. And it's all for big-ticket items, from individual PC sales to massive business-to-business deals. So if anyone, inside or outside, could access these databases and attack their data, the losses could be catastrophic. That's why Dell's site is driven by Microsoft SQL Server. Dell trusts its security to the tight integration between Microsoft SQL Server and Windows NT® Server, locking in a transaction environment impervious to unauthorized access. Dell is betting the future on eCommerce. They're trusting their security to Microsoft SQL Server.

Scalability: www.1800flowers.com. There's a new benchmark for database server scalability that anyone in eCommerce can relate to: roses sniffed per day. On Mother's Day, 1998, the world's largest florist, 1-800-FLOWERS®, went through the heaviest day in its history: 6,500,000 hits. Tens of thousands of orders shipped. And zero downtime. With Microsoft SQL Server managing the onslaught, the average order—consumer input, shipping information, the "Hi, Mom" message, credit card authorization, contacting the local florist, sending a confirming e-mail to the customer—took just 90 seconds. A fraction of the time of a phone transaction, without the headsets, keyboards, phone lines, overhead, or people. Not to be sentimental, but that's the kind of scalability and reliability that would make your mother proud.

Economy: www.barnesandnoble.com. You've seen a lot of benchmark studies for database servers. What do the numbers mean in the real world? To the world's largest bookseller, they mean one thing: lower cost-per-transaction. They're up against another major online bookseller that's built around a more expensive database. Since the cost-per-transaction of Microsoft SQL Server is less than a third of that of the competing database server*, barnesandnoble.com saw an edge for a discount business that lives with very small margins. Remember that an eCommerce sale isn't a single transaction. It involves handling customer information. Searching catalogs and inventory. Processing payments. Sending shipping instructions. With Microsoft SQL Server, they can pass savings to their customers with every transaction—and do it thousands and thousands of times per day.

The purpose of eCommerce is to make money on the Web. The purpose of Microsoft SQL Server is to get that result.

Where do you want to go today?®

Microsoft®

www.microsoft.com/sql/commerce/eval/

Visual Basic hits the 'net

► Version 6.0 boasts Web and data access tools

By David Orenstein
NEW YORK

USERS SAID they are optimistic about the Internet and data access enhancements in Microsoft Corp.'s upcoming release of Visual Basic 6.0.

The chance to see a live demonstration drew hundreds of curious and eager users to the VBITS '98 conference here last week. Microsoft expects to release Visual Basic 6.0 in early September as part of its Visual Studio development suite.

Ted Turner, a systems architect at St. Paul Cos., said the Minnesota-based insurance company will likely upgrade.

Visual Basic has come a long way since Version 4.0, when St. Paul declined even to certify the language as a preferred tool, Turner said. At that stage, the language wasn't object-oriented, and its performance lagged behind rival Sybase, Inc.'s PowerBuilder.

"With Visual Basic 6.0, Visual Basic has really come of age," Turner said. St. Paul Cos. now

builds all of its new applications in the language.

WEB FEATURES

Version 6.0 includes a host of tools that integrate Visual Basic with Internet technology. Those tools include a dynamic HyperText Markup Language page de-

What object-oriented developing tools do you use?

Microsoft Visual Studio	29%
IBM Visual Age	10%
PowerBuilder	8%
Delphi	7%
Rational Rose	7%
Symantec Cafe	5%
Select	5%
Paradigm Plus	5%
Other	24%

Base: Survey of 116 companies that develop object-oriented enterprise applications

Source: The Cutter Consortium, Arlington, Mass.

signer that lets users program interactive World Wide Web sites for Internet Explorer 4.0, and Web classes, which let users write applications on Internet servers that can be run from any browser.

Michael A. Brown, a senior developer at Metro Business

Consulting, Inc. in Sterling, Va., said applications must be usable from a standard Web browser. Applications served to browsers rather than over traditional client/server networks are easier to administer because no code resides on the client, he said.

Thomas Johnson, principal scientific analyst at drug maker

SmithKline Beecham PLC in King of Prussia, Pa., said he is looking forward to the greater Web integration, but he added that he is concerned about what seemed to be inadequate Java integration.

To serve applications to browsers, Johnson said, he now mixes VBscript with Java in InterDev, another Visual Studio tool. Johnson said he is concerned that Visual Basic 6.0's lack of Java support would keep Visual Basic users away from Java.

IMPROVEMENTS WELCOME

Microsoft also promises greatly improved data access tools. That will be critical for Joana Francisco, a computing engineer at Central Bank of Portugal. She is

half of all companies today have some sort of knowledge management initiative in place, according to The Delphi Group, Inc. in Boston.

At a briefing in Cambridge, Mass., Lotus officials demonstrated several add-ons to, and services for, Notes and Domino 5.0, which use the real-time instant messaging and chat technologies Lotus acquired when it bought DataBeam Corp. and Ubique Corp. last month.

Version 5.0 of Notes and Domino are due by year's end. With the upgrade features, Notes users will be able to locate information and team members more quickly via instant messaging and will be able to capture and save text from those messages.

Most knowledge management features and services discussed at the briefing will be available late this year and be-

Languages and the Web: The more the merrier

Following the lead of the other tools in Microsoft's planned September release of Visual Studio 6.0, the C++ 6.0 component has been enhanced to develop applications for use over the Web. That is important to users because C++ is a dominant language for programmers within corporations and at software developers.

"If I could do mostly everything for the Web in C++, I would stick with that," said Wayne Wilson, a network tools developer at Proxim, Inc., a developer of high-speed wireless LANs in Mountain View, Calif.

Karen Moser, an analyst at Aberdeen Group, Inc. in Boston, said C++ is a dominant language, but Microsoft would have been foolish not to include greater Web development capabilities to meet growing interest in the Internet and Java.

A survey conducted late last year by International Data Corp. in Framingham, Mass., showed that only 11% of organizations use Java for serious development while another 34% use the language or plan to use it for other work.

The Cutter Consortium, a consulting arm of Cutter Information Corp. in Arlington, Mass., found in a recent survey of 116 businesses that 43% expect to use Java and 31% plan to use C++ for object-oriented enterprise applications within three years.

— David Orenstein

now using Visual Basic 5.0 to develop a system that will receive and organize data from banks in Portugal and the European Union.

Version 5.0 "is terrible," she said. "I had lots of problems" because of data access bugs. Any improvement over Visual Basic 5.0's weak and buggy data access tools would be welcome, she said.

Visual Basic 6.0 adds the ability to design databases in Oracle Corp.'s format as well as in Microsoft's SQL Server. It also provides access to multiple data sources using Mi-

crosoft's Universal Data Access architecture.

Johnson agreed that Visual Basic 6.0 should enhance data access but said he will want to see it work on his own computer rather than in a slick Microsoft demonstration.

Turner also tempered his enthusiasm for the newest version. Although he said Version 6.0 looks like a strong release, he added that he will continue to use Inprise Corp.'s Delphi for the independent programming he does at home because Delphi's greater object orientation makes it faster. □

IBM/Lotus to tackle information overload

By Roberta Fusaro

IBM HOPES to come to the aid of users struggling with information glut by helping them harness that data and use it more efficiently.

With that goal in mind, Jeff Papows, president and CEO of IBM unit Lotus Development Corp., last week announced that knowledge management will define the company's strategic direction for the next few years. For starters, Lotus will integrate real-time messaging and search capabilities into its Notes and Domino upgrades, carving a niche for itself in the knowledge management space.

"We're dealing with an information glut and these [kinds of]

tools and technical help could help us manage that glut," said Dennis Murray, a technology manager at Novartis Pharmaceuticals' Clinical Development and Regulatory Affairs division. He said the drug maker is very interested in the collaboration features being built in to Notes and Domino 5.0 and in the idea of creating a knowledge pool at the company.

IMPORTANT TOPIC

The notion of making a company's collective information available to everyone in the organization was a big topic at Lotusphere earlier this year. Overall, it is becoming an increasingly important concept for business managers: More than

yond, Lotus officials said.

Hadley Reynolds, a research director at Delphi Group, said most Notes users will look to that platform for ways to manage information. So Lotus is smart to aim its products and services at the issues knowledge

"We're dealing with an information glut, and these [kinds of] tools and technical help could help us."

**- Dennis Murray
Novartis Pharmaceuticals**

management raises, he said.

Murray can't wait. He said Novartis already has a Domino-based intranet and is starting to categorize information and knowledge for the company and its associates.

But for users with multiple mail systems, knowledge management enhancements might not make a difference.

Bonnie Rutledge, director of operations at the Montpelier

branch of the Vermont Department of Motor Vehicles (DMV) and a Notes user, said the new features in Notes and Domino 5.0 are interesting but not a big attraction for the agency right now. The DMV is part of a larger agency, the Vermont Agency of Transportation, and other state departments don't use Notes for messaging. The departments use a hodgepodge of messaging systems, including Novell, Inc.'s GroupWise and IBM Profs.

But Rutledge said the DMV is using Notes for knowledge management to a small degree, by logging trouble events and equipment snafus via Notes databases.

Howard Deal, director of support services at the DMV, said the information systems staff is currently enmeshed in year 2000 updates. Project information is exchanged via Notes databases and E-mail, "but we'd have to take a hard look at add-ons and systems that would maximize resources," he said. □



**Linking laptops
to desktops,
accounting
to sales, U.S. to
Europe, and
you to the
Fortune 500.**

For a global company to succeed today, everyone and everything in the company must be on the same page. Wang Global can provide you with that page. We are an over \$3 billion service and solutions provider, offering a full range of network and desktop solutions to businesses throughout the world. We can design, deploy, maintain and manage a network that integrates your entire company into one efficient, money-making machine. 1-800-262-3696, ext. 1237 www.wang.com



IBM goes global with management services

By Kim Girard

IN AN EFFORT that could help users reduce their overall cost of PC ownership, IBM has enhanced its desktop management and asset management services and is offering them worldwide.

IBM will offer on a global scale service that covers asset management, help desk and testing. It previously was available only in North America.

According to analysts, IBM now can offer customers a financing package, a standards-based system for adminis-

trative tools and some additional technologies that provide, for example, the ability to wake up machines to download software or track an electronic ownership tag. Users can pick which services they need from the suite of offerings.

"It's a Lego approach, and it's pretty

good," said John Dunkle, president of Workgroup Strategic Services in Portsmouth, N.H. "It's telling people they don't have to do IBM everything."

Services in the IBM suite include the following:

- Asset Management, which helps companies track assets, record inventory changes and authorize new purchases on a Notes Domino World Wide Web-based database.
- Help Desk, which uses computer telephony and knowledge-based systems to make help desks more effective.
- Multivendor Networking, which helps companies plan, design and build multivendor networks.
- Capacity Planning and Performance Management Services, which runs computer models of customer networks to forecast needs.
- Testing Services, in which IBM constructs in-house replicas of customer network systems to test and forecast the effect of changes.

Pricing depends on which offerings are chosen but will range from \$50 for a basic asset management service to \$50,000 for modeling a customer system for capacity planning, IBM said.

CATCHING UP TO DEMAND

Tom Tracey said the industry overall has lagged in systems management, with the exception of Novell, Inc.'s ManageWise product and Computer Associates International, Inc.'s Unicenter. Tracey is technology officer at PNC Bank Corp. in Pittsburgh, which has 15,000 PCs.

He said corporate demand has helped bring more attention to systems management, and he added that the entire industry, including IBM with its new offering, is "now coming up to where it wants to be."

PNC Bank, an IBM customer, plans to use ManageWise for server management and will roll out Tangram for asset management, with a plan to implement IBM's Tivoli software in the long term.

Alex Hu, a senior technology officer at The Chase Manhattan Bank Corp. in New York, said that although IBM has some useful new management tools, standardizing across the bank's enterprise remains too difficult to rely on one vendor.

"There needs to be a big push by Microsoft [on systems management]," he said. "Otherwise, it's not going to work." □

Material from the IDG News Service was used for this report.

Check it out. Bookmark it and visit frequently for immediate access to vendors' web sites. Let us know what you think! Contact Laurie Gomes (laurie_gomes@cw.com) with your comments and suggestions.

It's easy. And there's only one URL to remember:
www.computerworld.com/marketplace.

Advertisers note: Call 1-800-343-6474 extension 8249 for information about direct response advertising opportunities in Computerworld.

COMPUTERWORLD

Annual
SALARY SURVEY
Issue in
COMPUTERWORLD

September 7 in print and on the web
Recruitment Advertising Deadline:
September 3 at 3pm

1-800-343-6474, x8000

When Government wants to fly at Web speed...

Government turns to Information Builders.

We help Government fly at Web Speed!

Web self-service applications. Web-enabled budgeting systems and data warehouses. Thin-client reporting and analysis systems. Web technology can make government agencies more efficient and more productive than ever before. But big agencies have big investments in a wide variety of hardware, software and databases, including: IDMS, DB2, Oracle, Model 204, MUMPS, Rdb, VSAM, Datacom, and many more. So how do you build new, production-scale Web systems without scrapping the infrastructure you already have in place? The answer... Information Builders.

Build Web Systems that Integrate Your Existing Applications and Data

For more than a decade, Information Builders has lead the software industry in technology for seamless integration of front-end tools with virtually any application or data on any computer platform. And we're way ahead of the industry in our ability to deploy these systems on the Web. That's why pioneers in Web technology, like Microsoft and Netscape, have partnered with us to expand their access to enterprise applications and data.

More Experience...Better Technology

No matter how large or complex your existing applications are, Information Builders has the software technology and services to put them on the Web faster and easier than you ever dreamed possible. So what are you waiting for? The Web race is on...right now...and it's the opportunity of a lifetime for your agency to shine as a leader in government information technology. Call the Federal Systems Group at Information Builders, today at 703-276-9006. GSA#: GS-35F-5034H

CALL THE BUILDERS

Federal Systems Group
(703) 276-9006

www.ibi.com

Information Builders, Inc. New York, NY (212) 736-4433 E-mail: info@ibi.com

Information
Builders®

Building Tomorrow's
Information Systems

DIRECT ANSWERS

The Dell Server Event

Very little in the server world is clear today. And, with the coming technology advances, you will be presented with both challenging decisions and tremendous opportunities.

Through direct relationships with our customers, partners, and alliances, Dell has developed farsighted strategies to take advantage of all the emerging technologies. We'd like to share them with you.

Learn how Dell is uniquely qualified to guide you through the turbulence of today's server climate. Plan to attend the Dell Server Event and get some direct answers to your questions.

EVENT SCHEDULE

8:30-9:00

Registration

Breakfast/Welcome

9:00-10:45

Technology Briefing

- Join Dell Senior Management to discuss Emerging Server Technology Trends that Will Impact Your Business
- New Dell Products Powered by These Technologies
- Direct Service
- Solutions Built on Leading Network Applications

11:00-12:00

Solution Sessions

Decide which educational session suits your business (select one)

- Making Better Decisions using Oracle Applications (Datamarts)
- Streamlining a Business with the Internet and E-Commerce

LOCATIONS

JUNE

- | | |
|----|--------------------------------------|
| 22 | Marriott Sea-Tac, Seattle, WA |
| 24 | Hotel Sofitel, Redwood City, CA |
| 26 | Airport Renaissance, Los Angeles, CA |
| 29 | Renaissance Dallas, Dallas, TX |

JULY

- | | |
|----|-------------------------------------|
| 01 | Detroit Troy Marriott, Detroit, MI |
| 07 | Hyatt Regency O-Hare, Rosemont, IL |
| 08 | Grand Hyatt, New York, NY |
| 10 | Capital Hilton, Washington DC |
| 13 | Westin Waltham, Waltham, MA |
| 15 | Westin Peachtree Plaza, Atlanta, GA |

REGISTRATION

www.computerworld.com/inc/events/dell
Phone: 888-212-8829
Fax: 508-620-9430

Be Direct



© 1998 Dell Computer Corporation

Get inside
COMPUTERWORLD

DO IT NOW

and save over ~~80%~~ off
the single copy price.



Call us toll-free at:

800-552-4431

Outside U.S.: (740) 382-3322

Fax your order to:

(740)382-1058

E-mail:
circulation@cw.com

51 issues for \$48~~00~~ \$39.95

First Name

MI

Last Name

Title

Company

E-mail address

Address

City

State

Zip

Address Shown: Home Business New Renew *U.S. Only. Canada \$95, Mexico, Central/South America \$150, Europe \$295, all other countries \$295. Foreign orders must be prepaid in U.S. dollars. Single copy price: \$4.00/issue

COMPUTERWORLD

B4F8 V

51 issues for \$48~~00~~ \$39.95

First Name

MI

Last Name

Title

Company

E-mail address

Address

City

State

Zip

Address Shown: Home Business New Renew *U.S. Only. Canada \$95, Mexico, Central/South America \$150, Europe \$295, all other countries \$295. Foreign orders must be prepaid in U.S. dollars. Single copy price: \$4.00/issue

COMPUTERWORLD

B4F8 V

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 55B MARION OH

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P O BOX 2044
MARION OHIO 43306-2144



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 55B MARION OH

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P O BOX 2044
MARION OHIO 43306-2144



**Money-Back
Guarantee**

If you are ever dissatisfied with your subscription for any reason, simply cancel it. We will refund the full amount paid on unmailed issues.

COMPUTERWORLD
P.O. Box 2044
Marion, Ohio 43306-2144

QUICK STUDY

COMPUTERWORLD

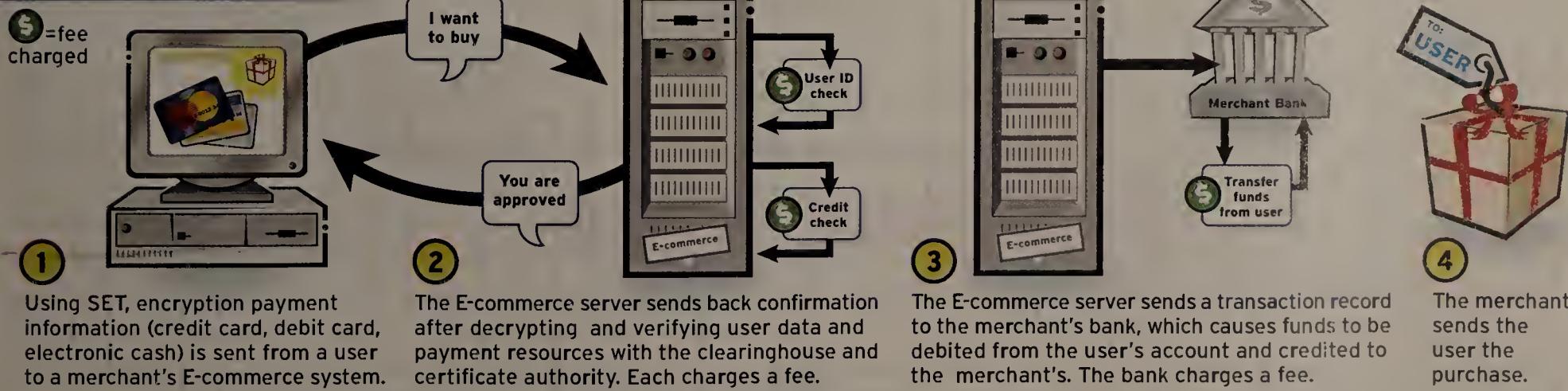
HOT TRENDS & TECHNOLOGIES IN BRIEF

Check out www.computerworld.com/more for more resources, Computerworld articles and links.

RELATED TERMS

Digital certificate	An electronic identification that says the user is who he or she claims to be. It's issued by a bank or clearinghouse and contains information about the user.
Digital signature	A code that guarantees a sender's identity. If an unauthorized person decrypts it, the digital signature will be altered, and the recipient will know of the tampering.
Digital wallet	A file or set of records for a user that contains all account data, such as credit-card numbers and a digital certificate.
Electronic cash	A form of money encoded on a credit card or in a digital wallet. Like cash, if it's lost or stolen, it can't be replaced. It lets you make anonymous transactions.
Smart card	A credit card embedded with a chip that contains a digital wallet and information about the cardholder.
Secure Socket Layer (SSL)	The current standard for electronic transactions. It's a simpler standard than SET, but it's less secure. Because of SSL's simplicity, analysts expect it to be used as the interface between the online buyer and the merchant.
Trusted authority	An organization that generates and validates secure keys. It is separate from an organization that performs the monetary transactions.

HOW SET WORKS



Secure Electronic Transaction

DEFINITION: A standard for secure credit-card transactions over the Internet. Visa International Service Association, MasterCard International, Inc., American Express Co. and Japan's JCB Credit Card Co. Ltd. have endorsed the standard. SET supports World Wide Web-based transactions between sellers and buyers; a revision due next year also will support business-to-business transactions, such as inventory payments, and smart cards.

E-commerce not ready for SET

By Galen Gruman

LACK OF ECONOMIC incentives for merchants and the high cost of implementation is keeping the Secure Electronic Transaction (SET) protocol from gaining acceptance. The 2-year-old standard, co-owned by Visa International Service Association and MasterCard International, Inc., is in trial tests in Europe and Asia.

But the adoption of SET in the U.S. is low, says Bill Burnham, senior research analyst of electronic commerce at Deutsche Bank Securities' technology group in San Francisco. A combination of technical, cultural and economic factors are accountable, he says.

Analysts agree that the adoption is low but that there are benefits to implementing SET, including reduced fraud and guaranteed payments.

AT ISSUE

Will SET gain widespread acceptance?

important," Lambert says. Customer demand is a big incentive for merchants, but it's up to the merchant to pay. It's difficult to figure the actual cost of SET, but it's expensive because it's so secure. Also, maintenance and technical support could be large costs, Burnham says.

Analysts agree that the banks and the clearinghouses will have to purchase SET transaction servers, and the clearinghouses will have to set up and distribute the users' and merchants' identification, called digital certificates (see Related Terms, at left). "There's really no good estimate of what it will cost, but my guess is at least \$3 per cardholder per year," Burnham says.

Furthermore, while SET was being developed and tested, other security measures cut the risk of fraud greatly, Burnham says. The combination of Secure Socket Layer security (see Related Terms) and fraud-detection software has provided adequate protection for customers and merchants — at a lower cost.

Most companies will need to add new validation, protocol-management and encryption/decryption software while using existing credit-card payment networks and Internet servers. And consumers will need to have SET software on their computers.

With or without SET, U.S. businesses are willing to risk unsecured electronic commerce — proven by the fast growth of Internet commerce in the past year without SET. According to Burnham, "Consumers and merchants say, 'It's risky, but so what?'" □



Y2K is a complete pain.

It's also an opportunity to improve your network.

*For more information about Windows NT Server and Year 2000 see www.microsoft.com/ntserver/y2k.

This promotion applies to version upgrades from any previous version of Windows NT Server and competitive upgrades—consult your reseller for a complete list of qualifying competitive products. Discount is up to 20% off estimated retail price of Windows NT Server 4.0. Reseller prices may vary. Promotion does not apply to Windows NT Server 4.0 Academic product. All price reductions effective through 11/15/98. Offer good in U.S. and Canada only.

© 1998 Microsoft Corporation. All rights reserved. Microsoft, Where do you want to go today? and Windows NT are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Other product and company names mentioned herein may be the trademarks of their respective owners.

Upgrade to Microsoft Windows NT Server 4.0 today.

Get one step closer to the next millennium.

Get a great file/print server.

Get an outstanding application server.

Get them unified on one platform.

Get up to 20% off and a free Services for NetWare CD-ROM.

Ironic, isn't it? That an inconvenience of Y2K's* immensity might actually do your network some good after all. But consider it this way: since there's no getting away from that major network upgrade, maybe there's something you can get out of it. For instance, here's what happens when you upgrade to Microsoft® Windows NT® Server 4.0:

Windows NT Server 4.0 delivers proven file/print performance. Using the industry-standard Netbench performance tool, Windows NT Server 4.0 outperforms Novell NetWare 4.11 by nearly 17% in file/print throughput tests.

Windows NT Server 4.0 unifies file/print and applications on one platform. It's the ideal choice for supporting key business applications, including groupware like Microsoft Exchange Server. There are already over 4,000 applications for Windows NT Server available today. And, of course, running your applications and file/print on a common platform simplifies the management of your network—giving you more time to focus on achieving your long-term goals.

Windows NT Server 4.0 is the easy way to prepare for the future. It's already the leading intranet platform—in fact, according to IntelliQuest, it's the platform that 56% of corporate Web applications are being built on. And with features like remote access services, virtual private networking and out-of-the-box integration with Microsoft Proxy Server, you can enable cost-effective, secure communication across the Internet among employees, customers and partners. It's an exceptional Web server too—according to NetCraft, more than half a million Internet sites are currently running on Windows NT Server.

Windows NT Server 4.0 reduces total cost of ownership. A recent study by the Business Research Group compared it to NetWare in a mixed environment, and revealed that, as a unified platform, Windows NT Server 4.0 lowers the costs of providing file/print sharing and application support by nearly 20%.

And if you upgrade now you'll save up to 20% off the estimated retail price.[†] You'll also qualify for a free Services for NetWare CD-ROM (ERP \$149) that makes it easier for you to transition your NetWare-based network to Windows NT Server 4.0.

So the question is not: How can I minimize the inconvenience of having to upgrade my file/print? The question is: How can I maximize the benefit of doing so? It seems that Y2K is about more than just surviving the turn of the millennium. Windows NT Server proves that it's equally about making the most of what's left of the 1900s, and getting the 2000s off to a flying start.

Upgrade to Windows NT Server 4.0 and save up to 20%.[†]

Act now to get a FREE Services for NetWare CD-ROM.

Get details at: www.microsoft.com/ntserver/upgrade/

Where do you want to go today?[®]

Microsoft[®]

OPINION

OPINION

Big Blue blessing

A little cheer went up in my heart when IBM recently adopted the free Apache Web server software to bundle with its own Web-Sphere line. This is the Big Blue blessing laid upon a truly open standard, on source code born and raised in the spirit of the Internet community. No marketing blitzkrieg. No empty talk about innovation. Just quiet, constant improvement in code quality — by volunteers.

About half the Web sites out there today use Apache freeware as their HTTP server, a critical component of Web applications that communicates with the browser. It's actually a very straightforward piece of software. It sits on the Internet and feeds Web pages to browsers as requested. No rocket science required.

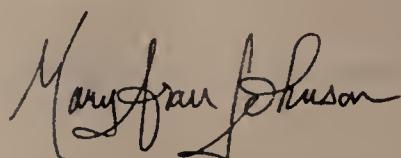
But years of fine-tuning and bug-fixing by scores of

Internet contributors produced a robust, scalable piece of software that runs every bit as well as rival commercial offerings from Microsoft and Netscape Communications. The competitive fallout from this deal is prompting the predictable yammering from industry analysts: What will happen to Microsoft and Netscape Web server products? What about IBM's line of Lotus Domino stuff? Yadda yadda. Yawn.

What makes this move noteworthy to corporate customers is the reassuring signal it sends that IBM's legendary resources and support will be just a phone call away.

Even more encouraging is IBM's public vow to join in that spirit by freely sharing its own improvements to Apache source code with the 'net community. That willingness to give something back — instead of walking away after pocketing the technology — sends another kind of reassuring signal. Corporate giants and freeware fanatics may have a lot more in common than they ever suspected.

Longtime 'netizens have deplored the "invasion" of their network by the crass commercialism of the Web. But imagine what the combined strengths of the business and the 'net community could accomplish. Imagine the impact such a detente could have on product quality and — even more compelling — choices in the marketplace.



Maryfran Johnson, executive editor

Internet: maryfran_johnson@cw.com



LETTERS

Readers take Steve Forbes to task over Microsoft case**Washington's latest power grab**

Steve Forbes

Politicos can no more resist involving themselves in successful industries than bears can resist honey.

The IT industry should watch its back. It has become an irresistible target, thanks to the fantastic wealth it has created. Fifty prices are skyrocketing. Entrepreneurs are fast becoming millionaires and billionaires. This boom is occurring without Washington's permission or knowledge, and that irks politicians to no end.

If we're to realize the full potential of technology, be-

IT has created fantastic wealth without politicians' permission or knowledge, and that irks them to no end.

... passed on to users — costs for connecting all classes of Internet. The idea of "universal service" by the government spreads rapidly. The market will be faster and more intensively engaged. The Microsoft in the aged and fa-

... sive amount of commerce being conducted via the Internet. For the moment, there's a tax moratorium on Internet commerce — but never underestimate a rapacious go-

sud. What bureaucrats are is that people and comp-

I THINK you could have picked a more informed author than Steve Forbes to write a column on the Microsoft situation [CW, April 27].

Control of the desktop gives Microsoft in effect a "natural monopoly" akin to that enjoyed by public utilities.

Microsoft has used every opportunity to leverage that market power to squelch or even pre-empt competition. The Internet is only the latest example.

Microsoft should be broken into at least two pieces: the company that makes the operating systems and the company that makes applications, development tools, etc. Then everyone would have a level playing field.

Unregulated markets tend toward concentration, which hurts consumers.

Look at the airline industry — it costs significantly less to fly to London from Washington than it does to San Francisco because there are more airlines competing on the trans-Atlantic routes.

The recent agreement between Microsoft and Sony to put Windows CE into Sony electronics should scare everyone with a Walkman.

At least Sony stuff works now. After they put Windows in, even your Walkman will crash!

Ron Hodges

Systems development consultant

Rockville, Md.

ron.hodges@cdsi.com

"GOVERNMENT, BAD; free market, good." That seemed to be the essence of Steve Forbes' column. As I write on my computer (IBM compatible, running Microsoft's Windows 95 and using Word 97) I have to think that Forbes' reasoning is incomplete.

He said the "government's harassment of Microsoft and Intel is just 'part of the power grab.'" I

Let Microsoft have its way with system software, but revoke licenses.

Here is a modest proposal: Let Microsoft have its way with the operating system and all of its software, but at the same time, revoke all copyright and licensing laws that apply to it.

Then we will see what freer markets can do.

*Bill Patterson
Principal consultant
Stratford Technologies, Inc.
Stratford, N.J.
patterson@computer.org*

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Randy Grein
Bellevue, Wash.
Rgrein@sla.com

How teens like me really use the 'net

David M. Thelen

Listening to sporting events. Shopping. Talking to friends. No, I'm not talking about things that you can do in your town — those are all things that you can do over the Internet. The Internet plays a huge role in kids' lives today.

A couple of years ago, having a friend with access to the 'net was a rare occurrence. Now, finding somebody who doesn't quite a feat. The Internet provides a big opportunity for teen-agers today, but on the whole, we take it for granted and don't use it to the fullest of our abilities.

In fact, a lot of kids use it just to get certain pictures their parents don't want them to see and don't even stop to realize that the Internet could help them get better grades.

Most kids' first Internet experience happens on the World Wide Web, where they are able to find just about anything they want. The latest craze is Internet



Do you want a curious 16-year-old to be able to buy anything he wants?

fect the way to do business over the Internet.

When you first consider buying stuff over the 'net, you think it will save you a lot of time. But look at it a little closer. Do you really want a curious 16-year-old to be able to buy anything he

wants as long as he's holding Dad's plastic? (He may not even have to borrow Dad's; I know a lot of teen-agers with credit cards.) Although businesses love the proposition of being able to sell products 24 hours a day, parents may feel the effect of such access in their pocketbooks.

CDs and computer games seem to be the things kids buy most. I personally haven't come across anybody who's purchased illegal stuff, but I know it goes on.

WIDE SCOPE

Shopping isn't the only thing that attracts kids to the 'net. Special interest groups also attract people of all ages. Baseball fans such as myself can play free fantasy baseball games — and compete with people around the world. We can put Ken Griffey Jr., Barry Bonds and Mike Piazza on the same team, all while winning money.

And what kid doesn't love to listen to music while doing homework? Or what about when you hear a great song but you don't understand the lyrics? Through the Web, you can do a quick search and find out what those words are. You can even E-mail your favorite band.

Besides listening to music, what else do most teen-agers like to do? (Besides homework.) That's right: talk on the phone.

But instead of calling the same and somewhat melodramatic friends, you can get into an easy-to-access chat room and talk to people who share your interests. You can find a chat room about anything: music, sports, computers, books. You can even enter a chat room that answers questions on how to use chat rooms.

I usually join the sports chat rooms. You occasionally find a few people who ruin the fun by making naive comments. When people like that log on, you just try to ignore them.

So as you may have guessed, the Internet is changing the way people manage their lives. Just think: One day, instead of going to school, a kid could sit at his home PC and have his homework assignments E-mailed to him.

Then, there would be no way the student could get in trouble, and there would be no teacher to yell at him because he's sleeping. □

Thelen is a sophomore at Heritage High School in Saginaw, Mich. His Internet address is zombot@sbbns.net.

A way out of the E-mail morass

Michael Schrage

On a good day, I get 25 or 30 E-mails that require my immediate response. On a bad day, I get 65 or 70. I seem to be having more bad days lately. How about you?

The infuriating thing about 99.99% of my E-mail is that none of it has been prioritized in any meaningful way. Instead, the numerous messages all look depressingly similar (except, of course, the spam from the digijerks who mask their identities behind alphanumeric slop instead of real E-names and addresses). And yes, I do what limited filtering my software permits.

The real problem is that I haven't a clue what most people expect from their E-missives. Do they just want to tell me something? Do they want me to respond? Do they want me to do something? And what about the when? This very minute? Does it have to be today? Tomorrow? Or maybe when I finally get around to it?

There is an obvious solution to this problem: We could insist that people appropriately label their E-mail. We could design headers that require E-mailers to

specify precisely what kind of message they are sending. Is it informational? Does it require a response? A behavior? Does it need to be forwarded to other parties? Archived? Swiftly deleted after reading?

A LITTLE EXTRA EFFORT

That isn't to suggest that the typical E-mail header should be longer than the typical E-mail itself. But challenging people to really think about how the messages they send should be received by their intended recipients is hardly a bad thing.

Indeed, in an era when knowledge workers ultimately can expect to process well over 100 E-mails per day, that challenge rapidly assumes a greater sense of urgency.

Part of me wishes that my

initial response to a query from someone I don't know would automatically generate a form response asking the sender to prioritize the message sent. Would that be offensive? Or would that be professional?

Your answer reveals a lot about your personal and professional values. My answer should be obvious.

American Express is one company where certain departments (notably IS) have the obligation to describe the E-mail they send. Reportedly, that discipline yields positive returns. But one has to ask why so very few organizations take the time and effort to think about how to better leverage their existing



It's infuriating that 99.99% of my incoming messages aren't prioritized in any meaningful way.

E-mail infrastructures in a way that respects the time constraints of the individuals who use them.

In an earlier column, I observed that hardly any companies intelligently track their E-mail flow or do traffic analysis to help see how E-mail patterns intersect with value creation.

Now, I have to wonder when more organizations will offer their people tools that will help them manage their E-mail interactions in a more effective and more efficient manner. I think IS needs to lead such initiatives if it has any hope of becoming seen as more than the digital plumber of the network enterprise.

Then again, I'm awfully fond of another solution to the E-mail conundrum: insist that all E-mail sent have a deletion date attached. Insist that half the messages must disappear within 24 hours.

Well, it's just a thought — but I like it. Just don't send me E-mail about it. □

*Schrage is a research associate at the MIT Media Lab and author of *No More Teams!* His Internet address is schrage@mit.edu.*

**AT A TIME LIKE THIS, THERE ARE SEVERAL
THINGS YOU MIGHT FIND USEFUL.**

Dive knife.

Depth gauge.

A large shark is swimming through dark, textured water. The shark's body is mostly obscured by the deep blue-grey tones of the ocean, but its dorsal fin and part of its back are visible against the lighter background.

Shark repellent.

Oxygen.

COMPUMARE

What do you need most?

Recentralization: Breaking the news

Bill Laberis

Slowly but inexorably, that imaginary door that separates centralized from decentralized IT decision-making is swinging in the direction of central control, and for all the right reasons.

The question today isn't so much the direction of the trend but whether such a politically incorrect notion as recentralization will be allowed to happen.

First, a bit of history. Centralized management was forged from the mainframes of the 1960s. The mainframe platform invited central decision-making, as everything that was purchased revolved around it, and no one understood mainframes but the MIS people.

The 1970s saw a little decentralization with the minicomputer, but you basically got miniature MIS units springing up in big departments — same wine in smaller bottles — as minis proved as convoluted and arcane as mainframes.

The PC gave birth to decentralized decision-making, which persisted for



There are executives who remember centralized MIS — they wore out knee pads begging for data.

they did things themselves — from setting up LANs to establishing E-mail systems to managing training.

Today, that decentralized model is crumbling because the drive is on to establish global, distributed, networked computing systems. Major decisions about network backbones, network hardware, applications suites and so forth

can't be made by a committee. Those decisions require a central authority lest they never get made at all.

So how the heck is anyone going to sell such an unsavory subject as centralized IT management? There still are many executives and managers out there who remember the glory days of centralized MIS, when those same executives wore out their knee pads begging for reports, data and other things held hostage by the MIS department.

But sell centralization you must. You ought to start by pointing out that the recentralization movement is well under way. More than two years ago, the Research Board, composed of IS executives from some of the largest North American companies, found that a majority of its members were strengthening centralized control over both purchasing and applications development.

Venerable giants such as Mobil and Alcoa, in preparation for major intranet deployments, aggressively recentralized key aspects of IT. Even decentralization pioneer Levi Strauss has turned to centralized planning as the company faces new global competitive challenges.

When pitching centralization-wary department managers — and there are many of them — it's critical to link the benefits of central planning directly to a business outcome. For example, the IT foundation for successful electronic commerce will demand a bulletproof, unified plan that dictates how data is switched and routed within the company; how and what data is accessed outside the company; how it's stored on tomorrow's network storage systems; and how data is defined so that it looks the same to all users regardless of its origins.

And as the growing army of remote users adopts a growing array of new devices, coordination and administration become more critical than ever.

Those things just aren't happening without centralization.

But mostly, you must show a clear, deliberate break with the past. No more arrogance. No more talking in IT tongues. Converting users' distrust into trust will be the most mission-critical piece of recentralization. □

Editor in chief at Computerworld from 1986 to 1996, Laberis is now president of Bill Laberis Associates, a consulting and publishing company in Holliston, Mass. His Internet address is bill@laberis.com.

The Microsoft monopoly muddle

David Moschella

A prediction: There will be no winner or loser in the contest between Microsoft and the Department of Justice, only a complex, often acrimonious struggle for a compromise that likely will benefit us all. Here's how I see it:

Half of Assistant Attorney General Joel Klein's position is simple. He believes Microsoft has a monopoly in PC operating systems, and he knows there is a long legal history supporting the view that monopolists are subject to different rules and tougher standards than the average company.

However deciding how to apply that thinking is another matter altogether. Anticompetitive behavior is a lot like pornography. Most people think they know pornography when they see it, but trying to define it into law often proves impossible. Consequently, today's antitrust laws are highly ambiguous and sometimes leave Microsoft in the unenviable position of not knowing whether a particular action, deal or decision will be deemed legal.

Author Ayn Rand had it right in 1962

when she described the plight of the businessman as follows: "If he charges prices which some bureaucrats judge as too high, he can be prosecuted for monopoly — if he charges prices lower than those of his competitors, he can be prosecuted for unfair competition — and if he charges the same price, he can be prosecuted for collusion or conspiracy." In that environment, Klein's logic will inevitably sound fuzzy, but it will benefit from the powerful rhetoric of fairness.

In sharp contrast, Microsoft will point to such operating systems as Mac OS, OS/2, Unix and Linux as evidence that the company isn't a monopoly and therefore it should be treated like any other firm. From that position, Microsoft's lawyers will be able to show that no matter what the Justice Department might accuse the company of, other IT compa-

nies are doing virtually identical things.

But the "we're just like everybody else" defense also has its problems. There is, of course, the inconvenient fact that Microsoft has 95% of the PC operating system business. But perhaps more important, America's instinctive distrust of Things Big will make it highly skeptical of Microsoft's power. Indeed, the very idea of antitrust law emerged out of the checks and balances deeply ingrained in American culture. Consequently, to much of the public, Microsoft's arguments will sound clear but unacceptably Darwinian.

So fuzzy and fair are being pitted against clear and Darwinian. Given the choice, society would like its laws clear and its markets fair. Unfortunately, as noted, in the



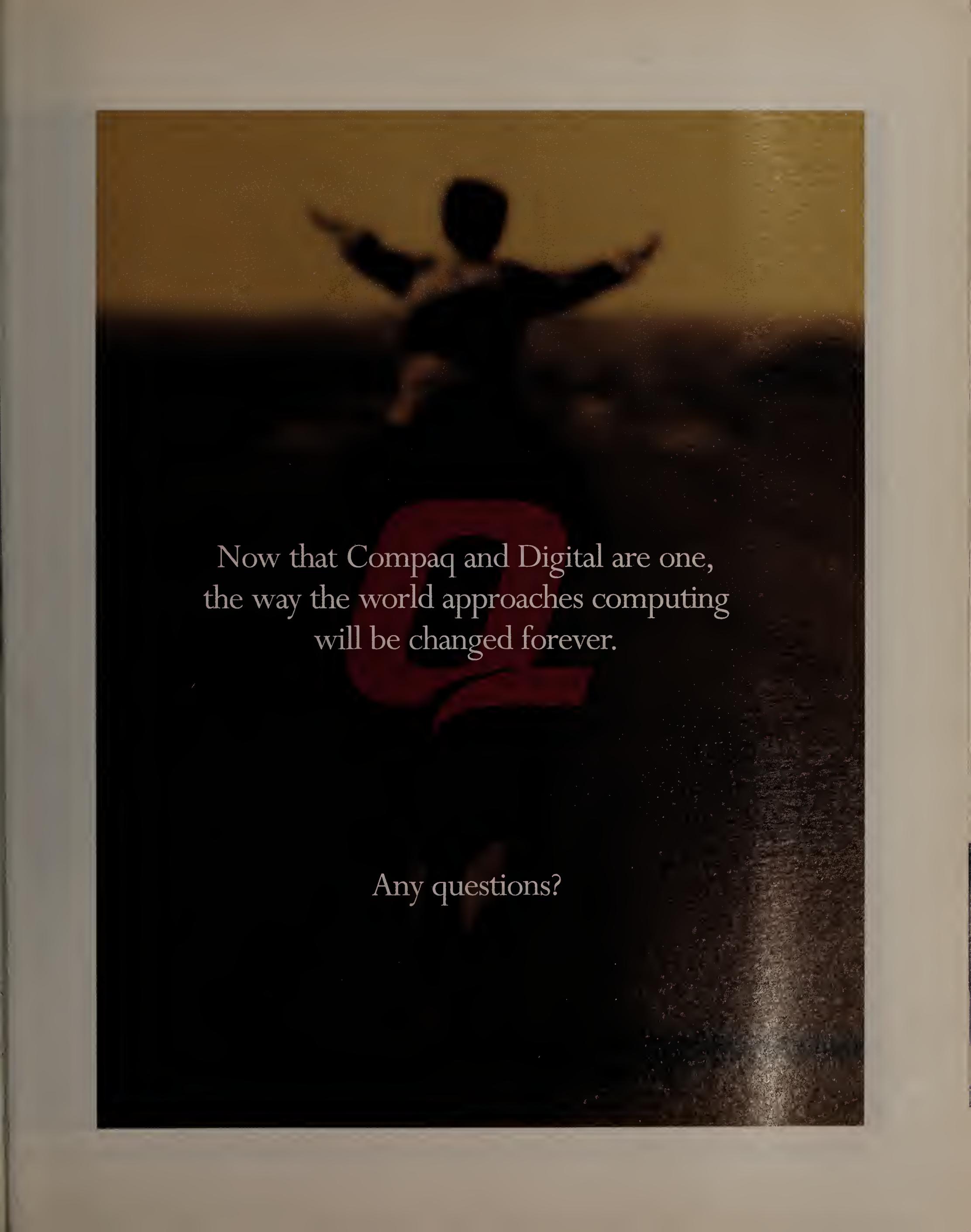
Fuzzy and fair are being pitted against clear and Darwinian.

world of antitrust, that option doesn't exist. That's why the process almost certainly will be a muddle: a bit fuzzy, a bit clear, a bit fair, a bit Darwinian.

We've seen that pattern before. The government always had a hard time explaining what exactly it wanted to do about IBM. But somehow — between the 1952 consent decree that barred IBM from the service bureau business, government jawboning that encouraged IBM to unbundle its software and endless suits and settlements that helped make it possible for competitors to build IBM-compatible processor, disk and tape equipment — a more level playing field was eventually built.

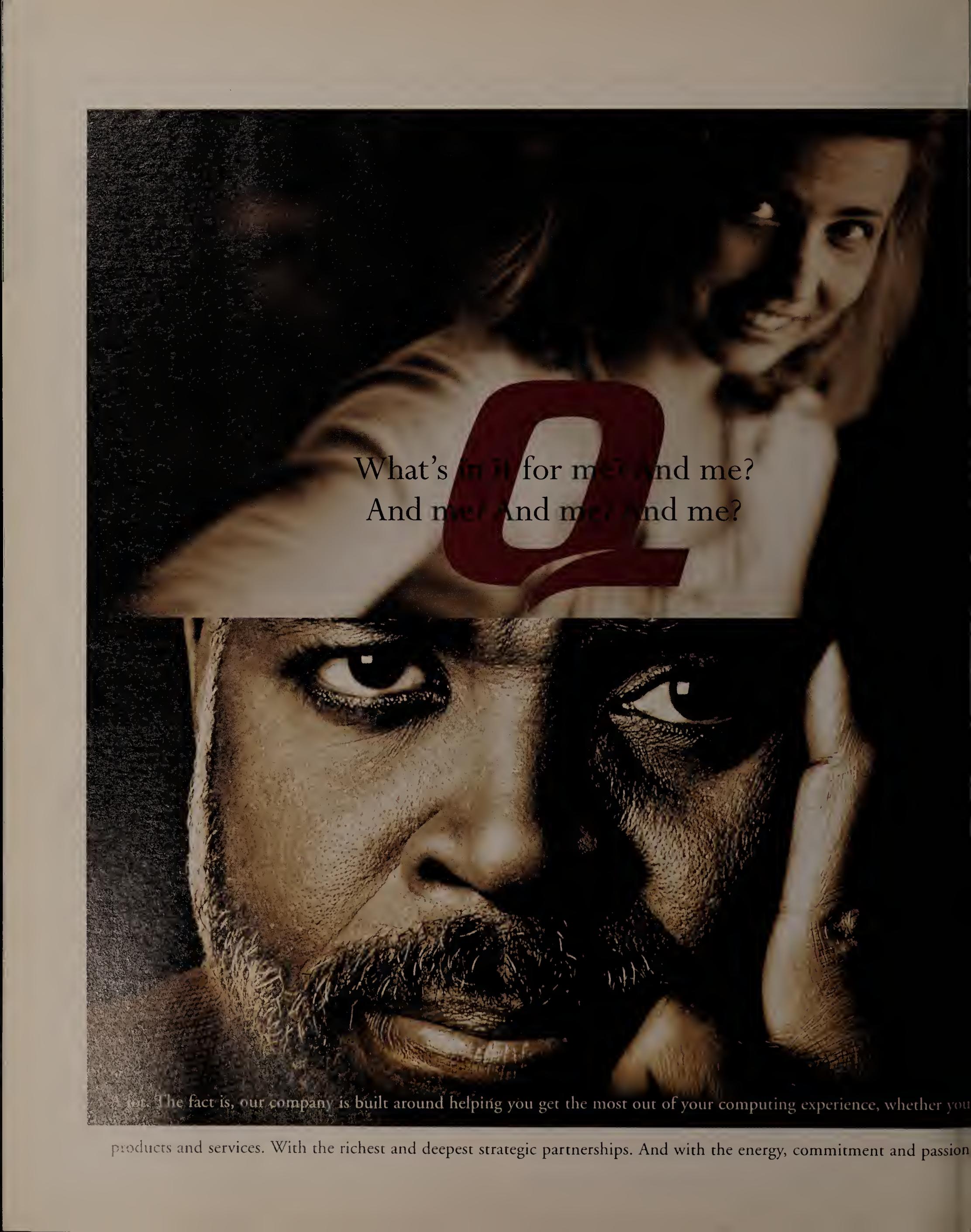
Odds are that a similar path awaits Microsoft. Don't expect any watershed decisions, just a steady series of agreements and pressures that restrain Microsoft's power without fundamentally hindering its ability to innovate and compete. It won't be pretty, but history suggests that the results will benefit us all. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. His Internet address is dmoschella@earthlink.net.



Now that Compaq and Digital are one,
the way the world approaches computing
will be changed forever.

Any questions?



What's in it for me, and me?
And me? And me? And me?

The fact is, our company is built around helping you get the most out of your computing experience, whether you

products and services. With the richest and deepest strategic partnerships. And with the energy, commitment and passion



e one PC, or run the most complex global enterprise network. How? With the widest range of affordable, reliable standard

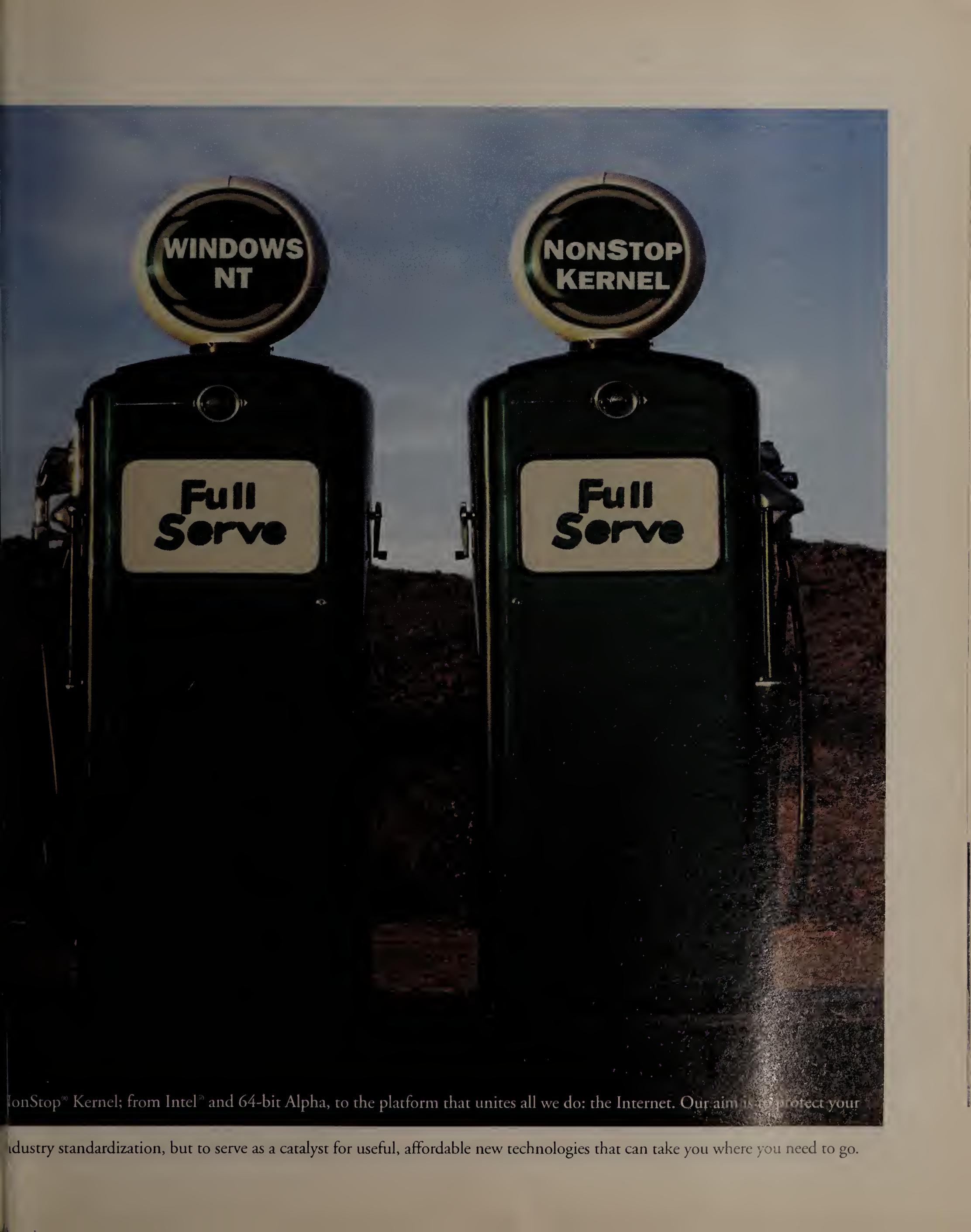
fr useful innovation that drive the people of this company, as they seek the very best solutions to your toughest problems.



What kind of mileage
can I expect from a new Compaq?

Unlimited. We're firmly committed to all our platforms and technologies—from OpenVMS™ and UNIX, to Windows NT and

IT investments of years past and to make them work with what you buy in years ahead. To not only drive these technologies toward



**WINDOWS
NT**

**NONSTOP
KERNEL**

**Full
Serve**

**Full
Serve**

NonStop® Kernel; from Intel® and 64-bit Alpha, to the platform that unites all we do: the Internet. Our aim is to protect your

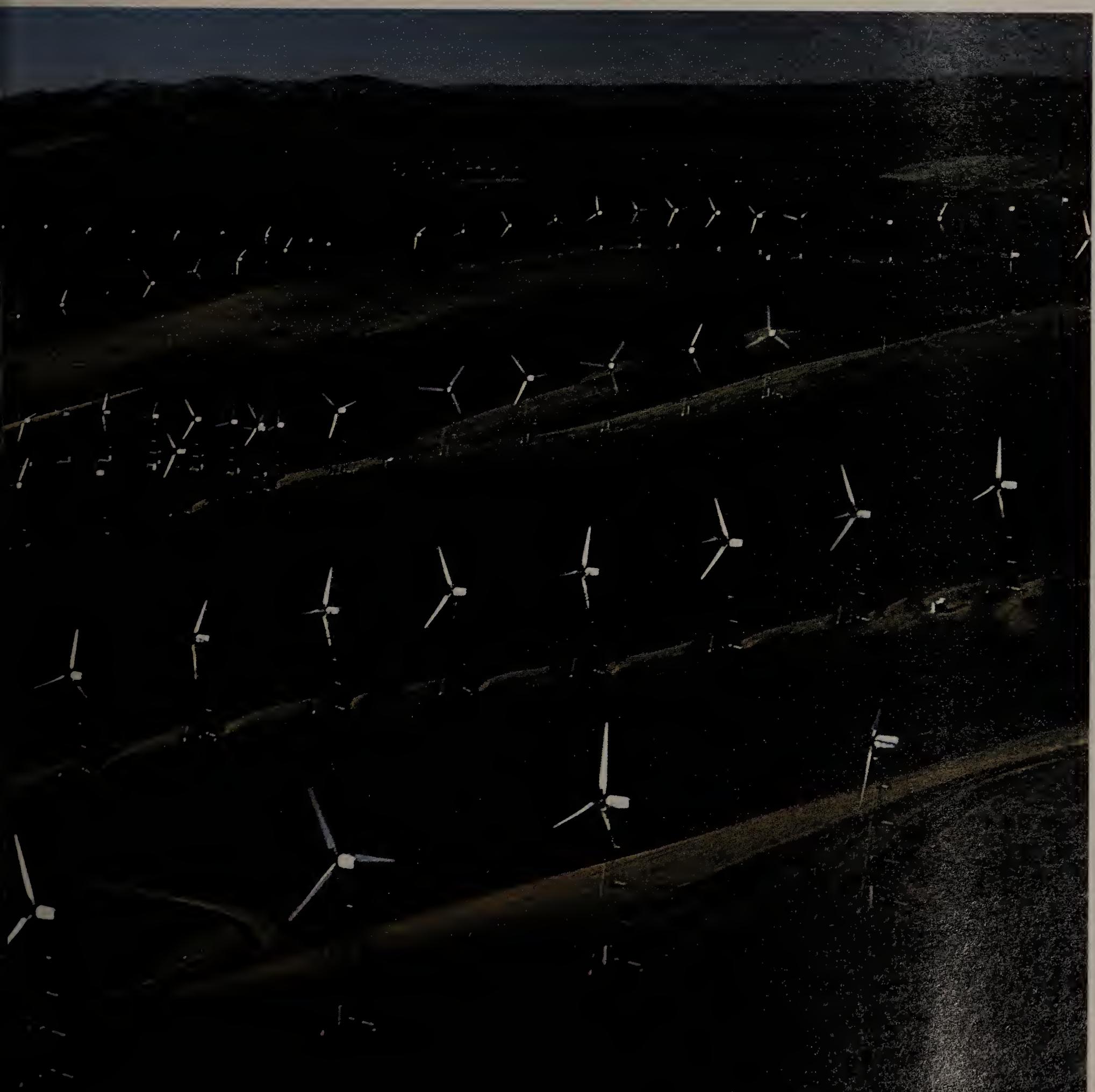
industry standardization, but to serve as a catalyst for useful, affordable new technologies that can take you where you need to go.



Is there power in standardization?

Absolutely. When a technology achieves industry standardization, the costs and risks of using it go down, and the number of

the way in taking the best, most deserving technologies—whether for the desktop or the enterprise—and pushing them towards



dividuals and businesses who can use it goes up. That's power. And that's one of the principles Compaq was built on. Today, we lead

vider acceptance and greater affordability. So that more people end up with more ways, better ways, of doing what they need to do.



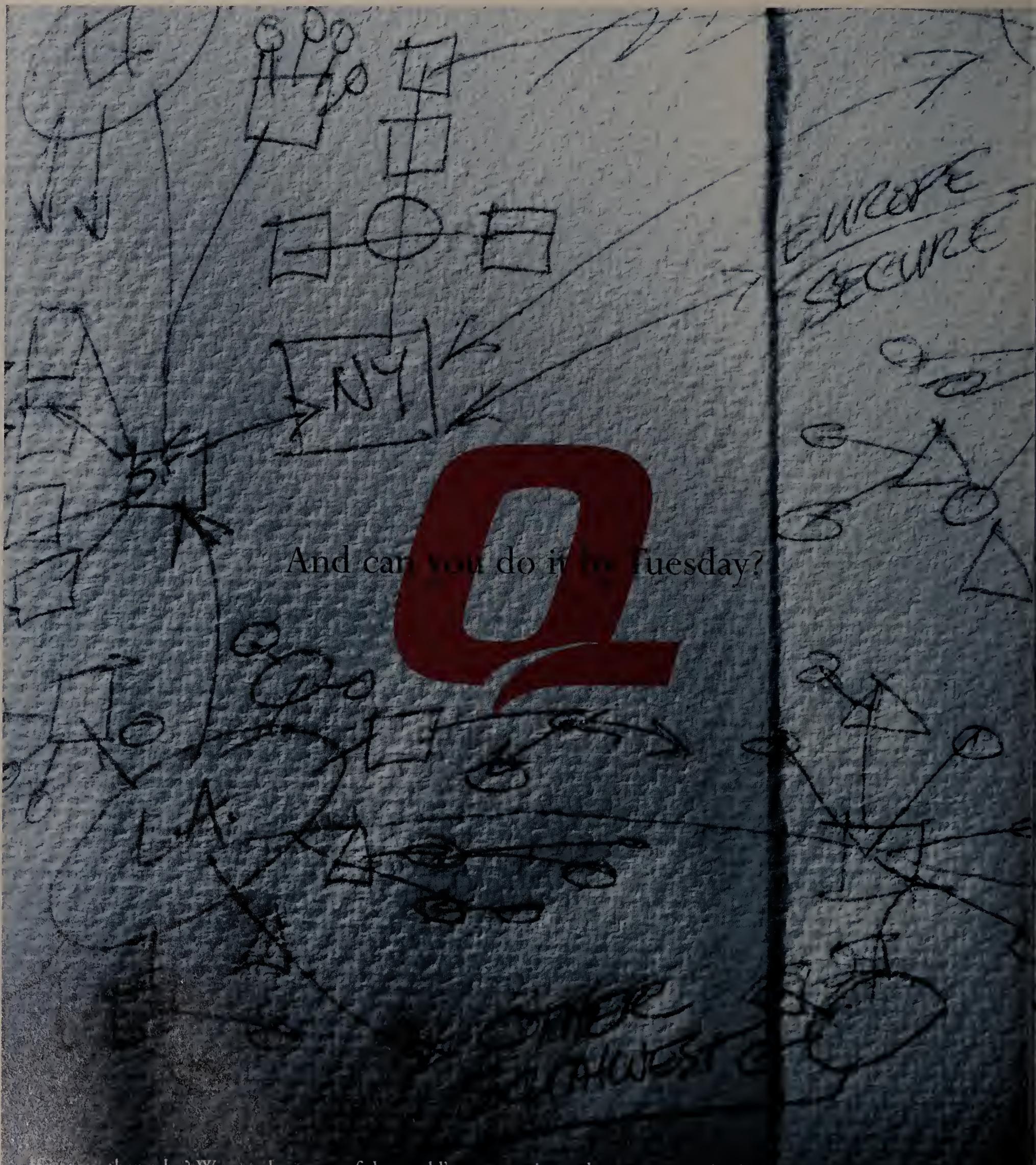
And whether it's working with technology partners, channel partners or our customers, it's a true collaboration, in
we are. And today we proactively seek the best minds in our industry, so that together we can find the best answers—in



Who's at the hub of
today's most important
strategic IT partnerships?

which we help innovate, develop and fine-tune the best solutions. Leading the way in partnering has always been part of who

everything from Internet commerce to mission-critical applications in finance, communications, manufacturing and more.



And can you do it... Tuesday?

If not us, then who? We now have one of the world's great service and support organizations: some 25,000 IT experts in over

them directly or over the Web to partners, resellers and customers at great savings in time and money. It's one example of

©1998 Compaq Computer Corporation. All rights reserved. Compaq registered U.S. Patent and Trademark Office. Better Answers is a service mark of Compaq. DIGITAL, OpenVMS and Alpha are trademarks of Digital Equipment Corporation. intel is a registered trademark of Intel Corporation. Windows NT is a registered trademark of Microsoft Corporation. UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company, Ltd. All other names are trademarks or registered trademarks of their respective companies.

0 countries. We've even turned much of our experience in solving tough problems into leading-edge tools and products, offering

something that today is more true than ever: for the best answers in information technology, it's unquestionably Compaq.



COMPAQ

Better answers.SM

www.compaq.com/betteranswers
1-800-AT-COMPAQ

Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

IS WORRIES:

What keeps you awake at night?	
Year 2000	20.3%
Security	17.6%
Finding and keeping staff	16.3%
Network issues (management, performance, expansion)	15.7%
Budget	14.4%
Keeping up with technology	12.4%
System reliability	11.8%

Base: Survey of 153 IS managers responsible for an average of 3,500 users with host access; multiple responses allowed

Source: MSI Consulting Group, Seattle

Fraud prevention

The Fraud & Theft Information Bureau (FTIB), a publishing house in Boynton, Fla., recently released an updated edition of its 330-page Credit Card & Check Fraud manual. The publication includes a database that identifies the addresses and ZIP codes that are popular shields for fraudulent purchases made using credit cards and checks. The manual provides retail businesses, service companies, banks and law enforcement agencies with tips to stop fraud.

"If any business has a problem that can't be solved with the help of the manual, they can call us, and we'll solve it free of charge," said Larry Schwartz, president of FTIB.

The catalog, which costs \$199.95, also can be viewed at www.fraudandtheftinfo.com.

How much of your annual expenditures go to outsourcers?

Less than 1%	18%
1% to 5%	37%
6% to 10%	22%
11% to 25%	8%
More than 25%	10%

Base: Survey of 400 managers

Source: The Wharton School, Philadelphia

Stock options afflict mergers

► Software computes prices more easily

By Thomas Hoffman

MERGERS TYPICALLY generate a lot of frenetic behind-the-scenes activity. What will the new corporate logo be? How will the data center be consolidated?

And how will the company match jumpy stock prices with the tidal wave of stock options employees exercise during the merger? That is one of the more demanding premarital problems, said Maureen Carini, an analyst at Standard & Poor's Equity Group in New York.

Before a deal is closed, share prices typically jump around like a cardiogram, which makes it tough for options administrators to match stock prices with

Before a deal is closed, share prices jump around like a cardiogram.

options. And merger partners that usually use spreadsheets to match stock prices with options often "don't know if the balances are correct," said Linda DiSanto, a corporate paralegal at CVS Corp. The Woonsocket, R.I.-based drugstore chain merged with Twinsburg, Ohio-based Revco D.S., Inc. last May. To help streamline the

process, CVS and other companies, including U.S. Bancorp, have used an automated record-keeping package from Los Altos, Calif.-based Corporate Management Solutions, Inc. (CMS) called Express Options for Windows. Competing products include Equity Edge for Stock Purchase Version 4.0 from Sharedata, Inc. in Santa Clara, Calif.

Express Options, which runs on Windows 95 and Windows NT, was designed to track the number of stock options, the number of stock options that are exercised and the price per option. The software automatically converts stock options using up-to-date share prices.

When a merger is finalized, "we tend to see a lot of [options] actions by former employees," said Mark King, a business operations analyst at U.S. Bancorp in Minneapolis. Using the CMS software during its \$8.9 billion merger with First Bank System, Inc. last August, U.S. Bancorp was able to convert

Stock options, page 50

• Year 2000: View from the trenches

Long days ahead at the DEA

By Matt Hamblen

IN THE TRENCHES of the year 2000 battle, Don Essick is a foot soldier.

Amid the tedium of fixing 1 trillion dates in the records of the Drug Enforcement Administration (DEA) in Arlington, Va., the 52-year-old Essick sees co-workers worry every day about whether they should jump ship for better pay in the private sector.

He also sees long weeks of overtime looming in his future. A federal contractor at Logicon Syscon in Falls Church, Va., he already has worked nearly full time on year 2000 fixes at the DEA for more than a year.

And, he said, he has nagging worries that even if the DEA gets ready in time, other agencies won't, and his hard work will be wasted.

"There are several federal agencies that are still in major denial about year 2000," Essick said. "I think some government leaders are just plain ignoring it



The DEA's Don Essick plans to take his last vacation of the century in August

and need to be honest. Let's not put fear in everybody, but be honest and talk about what could possibly happen."

Overall, the federal government in early June got an F for year 2000 readiness from U.S.

Year 2000 trenches, page 50

Improving job satisfaction

What makes technical people more satisfied with their work?

→ Nonmonetary compensation, such as special titles and flexible time

→ An emphasis on career planning

Respondents' job satisfaction was less likely to be linked to the following:

→ Salary

→ Level of influence in decision-making

Source: Drexel University, Philadelphia; Rider University, Lawrenceville, N.J.

Techies want more than pay

By Barb Cole-Gomolski

RON NICHOLSON, a senior systems analyst at Georgetown University in Washington, probably could make more money if he worked at a large corporation. But he likes that his current employer pays for training that will help him learn Windows NT administration and Java programming.

Nicholson is like a lot of IS technicians who place a higher value on career development than getting a quick raise.

Preliminary results from a study by researchers at Drexel University in Philadelphia and Rider University in Lawrenceville, N.J., show that technical people in information systems departments tend to rate career development and nonmonetary compensation as more important factors in their job satisfaction than money. Also, technical staffers often are frustrated by the lack of career planning made available to them.

A recent *Computerworld* survey of 500 information technology professionals yielded similar results. Respondents said salary was important, but they would trade a big bonus for flextime, greater intellectual challenge and training.

Techies, page 50

Automation at the low end

By Craig Stedman

TO TRY TO automate production planning without busting budgets, some midsize manufacturers are turning to low-end software designed to get the job done with minimal fuss.

For example, Flexible Products Co., a \$150 million maker of chemical products in Marietta, Ga., is using PC-based software from Distinction Software, Inc. to set production schedules for its flagship foam sealant spray.

Distinction's five product modules start at about \$50,000 each. Top-tier production planning software usually comes in \$1 million chunks, said Larry Lapide, an analyst at AMR Research, Inc. in Boston.

Before the software was installed two years ago at Flexible's Joliet, Ill., plant, planners there worked "basically by the seat of their pants," said Bruce Duttenhofer, the company's chief information officer. To forecast sales, they looked at the previous year "and really just pulled out a number" to tack on for expected growth, he said.

That sometimes left the plant short of key materials such as aerosol cans and spray valves. "We made customers mad be-

MANUAL NO MORE

Jobs that production planners are looking to automate include:

- **Demand forecasting and modeling**
- **Setting inventory-stocking strategies**
- **Scheduling day-to-day manufacturing**
- **Planning purchases of raw materials**
- **Generating product distribution plans**

cause we couldn't ship products quickly," Duttenhofer said. Rush-ordering more cans increased the company's costs, and on one occasion Flexible had to outsource production to catch up with demand.

ACCORDING TO NEEDS

Duttenhofer said Distinction's Scope software automated forecasting and is helping the plant set a more level production schedule for the household foam sealant, which sells primarily in cold-weather months but has to be made all year to build up inventory. Higher-end

planning software "was a lot more than we needed," he added.

Atlanta-based Distinction is one of a half-dozen or so vendors that develop low-end planning software for users that make relatively uncomplicated products at a single plant or regional facilities.

Their track records are somewhat limited — Distinction has only about 20 users now. But for users who have always done their planning on whiteboards, the low-end products can be easier to use and less expensive than top-tier supply-chain software made by vendors such as I2 Technologies, Inc. and Manugistics Group, Inc., Lapide said.

Ease of use and simple installation were top priorities for LPS Laboratories, Inc., a maker of cleaners, lubricants and other products. The company began using Distinction's forecasting module six months ago.

Like Flexible Products, LPS was looking only at past sales data to do forecasting before, said Andy Lisska, director of operations at LPS's Tucker, Ga., plant. That left LPS with more inventory than it needed, Lisska said. He added that he is counting on the software to help chop inventory costs by 10% or more. □

migration software from Sirius Software, Inc. in Cambridge, Mass. Essick said Sirius is the only product that has allowed transparent sharing of dates with other law enforcement agencies that are using either six or eight digits.

Essick said the use of Sirius software has cut the timetable for data fixes by 20% to 30%. Nonetheless, fixing 1 trillion date fields at the DEA gives Essick and his co-workers some butterflies.

After he finishes fixes on data this month, testing will start. Essick plans a vacation in August — his last until after 2000. "There's going to be a lot of overtime after I return, but I'm a salaried worker and don't get overtime in theory. But if there's too much overtime, I may be renegotiating all that. We'll see how it goes."

A chart in a hallway at the DEA marks the workdays remaining until year 2000. It is especially sobering to Essick. "I was looking at that the other day, and the number was getting real small," he said. □

View from year 2000 trenches

CONTINUED FROM PAGE 49

Rep. Steve Horn (R-Calif.), chairman of the House's Government Management, Information and Technology subcommittee. A handful of agencies did receive high marks, but the Justice Department, which oversees the DEA, got a D.

Essick, a 30-year information technology veteran, said he feels that he and his colleagues are being criticized and second-guessed from all sides, from Horn to the public at large.

"A lot of average people think all this year 2000 stuff is scaremongering, and they say it's another way of government grabbing more tax dollars," Essick said. (The government is spending about \$5 billion on year 2000 remediation.)

"But I tell them, 'What's the alternative?'"

Essick said he believes that the DEA deserves "at least a C or C+" and should be ready to begin testing by October, well

ahead of the government's Dec. 31 deadline.

Nonetheless, there are about 18 months left of what Essick calls mostly tedious, repetitive work. And during lulls in that work, his colleagues increasingly talk of how they could be making six figures doing Cobol work at the offices of MCI Communications Corp. across the street.

NO EASY TASK

Essick isn't assigned to fix the DEA's 2.5 millions lines of code. Instead, he is working on 680 million records, each of which has between 1 and 12 dates in it.

The DEA is using a "windowing" fix that assigns the 20th century to part of the two-digit dates and the 21st century to the other part.

In one of the few bright spots of his work, Essick said, the DEA has done better than some agencies because it uses data

Techies want more

CONTINUED FROM PAGE 49

The Drexel and Rider researchers asked 59 IS people in technical positions to compare themselves to their managerial counterparts in the areas of pay, recognition, decision-making influence and other areas.

Not surprisingly, people on a technical path said they didn't earn as much as managers. But "even though they perceived that they weren't being paid the same, that wasn't related to leaving a job," said Cathy Ridings, a doctoral student at Drexel and co-author of the study.

What would cause them to leave a job was a company's stinginess with other factors, such as a special title, or an employer's lack of interest in their career plan, the study showed.

EYE ON THE FUTURE

"Most technical people don't select a job based on which offers the highest immediate return," said Philip Carden, managing consultant at Renaissance Worldwide, Inc., an IS consultancy in Hoboken, N.J. Instead, they pick the one that offers the best mix of current income and increased future earning potential, he said.

"Technical people are very aware of their market value, so to suggest that money is not a consideration [in switching jobs] is naive," he said.

The opportunity to do challenging work and continue learning is key to those people because they like the intellectual stimulation and because it increases their market value, said Carden, who has opened and staffed two Renaissance offices in the New York area in the past three years.

Stock options confuse mergers

CONTINUED FROM PAGE 49

stock options for 1,300 First Bank System "optionees" overnight, King said.

"If I had to transfer 1,300 optionees manually [using spreadsheets], I can't even imagine how long that would take," King said. The CMS software's conversion techniques "saved a lot of heartache and a ton of time," he said.

The software was also a big help to CVS in the company's \$2.8 billion deal with Revco, DiSanto said. He is responsible for administering the compa-

The problem is that in many companies, there isn't a clear-cut career track or much emphasis on career planning for the IS technicians, Ridings said. "These people often leave their jobs because they feel there is nowhere else for them to go, or they are promoted to management jobs for which they are not suited," she said.

Julie Yancey, managing director of development services at Federal Express in Memphis, said the company has a program that lets managers award top technical performers with free dinners, theater tickets and cash bonuses.

But she added that the company has done less to formalize the career planning that technical types seem to value.

"[IS technicians] often leave their jobs because they feel there is nowhere else for them to go."

- Cathy Ridings
Drexel University

Ridings said the study should be a wake-up call to companies that wish to retain IS technicians that they need to focus on nonmonetary compensation and career planning tools. "Things such as meeting with your boss to discuss your career are important to technical people," Ridings said.

However, in a lot of companies, such exercises are reserved only for people that are on the management track, she added. □

ny's stock options program.

Having accurate stock and options data in the system "saved a lot of time" when it came time to check the accuracy of the data compared with having to use a spreadsheet, DiSanto said. □

MORE ONLINE

For articles and information on high-tech mergers, visit [Computerworld online](http://Computerworld.com).

[www.computerworld.com/more](http://Computerworld.com/more)

Internet Commerce

Electronic Commerce • The World Wide Web • Intranets

Briefs

'NET PRIVACY INDEX

Internet users concerned about privacy online: 81%

Internet users who said their privacy has definitely been invaded online: 6%

Base: Survey and interviews with 1,011 U.S. adults

Sources: Louis Harris and Associates, Inc., survey conducted for Privacy & American Business, Hackensack, N.J., and Price Waterhouse LLP

Online bill payment

CyberCash, Inc. in Reston, Va., will conduct a trial Internet bill-payment program with the Digital City/Washington World Wide Web site next month. With CyberCash PayNow, Digital City users in the Washington area will be able to pay various utility and other bills through electronic debits to their bank accounts. Consumers first will have to set up account details off-line with each participating utility. They then can go to the site, check their bill amount and click to confirm a payment request.

Health care intranet

This week, Santa Clara, Calif.-based Siemens Business Communications will begin selling a health care intranet that includes software, hardware and consulting services. The system delivers patient information, research, market reports and other data via E-mail, fax and pager. The service costs \$250,000.

Video venture funding

VStream, Inc., a Boulder, Colo.-based company that specializes in video streaming technology, last week announced that it has secured \$10 million in venture funding from The Centennial Funds, Softbank Technology Ventures and Highland Capital Partners. Joining VStream's board of directors are Don Parsons, general partner at Centennial Funds, and Brad Feld, managing director of Softbank.

Balkans turn to Web for news

► Real-time audio to be added next

By Sharon Machlis

AS WAR RAGED in Bosnia and "ethnic cleansing" claimed the lives of tens of thousands, Dutch systems administrator Frank Tiggelaar said, he "knew as much about [former] Yugoslavia as your average newspaper reader."

Then Bosnian refugees moved into his apartment building and told him their stories.

Today, Tiggelaar, 47, and a small team of volunteers run an ambitious Balkan news site on the World Wide Web called Domovina Net ("domovina" means homeland). It has about 10G bytes of data spread over servers in four countries and includes video and audio streams from around the world. Domovina Net (www.domovina.net) also features news reports from Kosovo, the Yugoslav province where Serb forces have repeatedly clashed with the majority ethnic Albanian population.

The latest project, set to debut next month with backing from several nonprofit groups, will bring to the Web real-time audio feeds from the International War Crimes Tribunal in



Domovina Net features news of the Balkan conflict. Here, an Albanian walks through the remains of his home after it was gutted by a Serb rocket-propelled grenade

The Hague. Tiggelaar said that will help media within Bosnia rebroadcast the trials as well as give sound bites to other small media outlets in Europe.

"It's an amazing information

source," said Andras Riedlmaier, a bibliographer at Harvard University who has launched a project to help rebuild the collections of Bosnia's Balkan news, page 54

Users scoff at scheme to insure against hacking

By Laura DiDio

JUST ANOTHER marketing ploy.

That was the reaction of several users and security industry experts to the recent news that the International Computer Security Association, Inc. (ICSA) would sell hacker insurance to businesses.

Two weeks ago, the ICSA, a nonprofit organization in Carlisle, Pa., said it was working with several insurance companies to provide computer security policies that insure corporations against hacker attacks.

The caveat is that businesses must first buy the ICSA's TruSecure service for \$40,000 per year. Once their sites pass the ICSA's hacking test, they can be insured for a maximum

annual payment of \$250,000, or \$20,000 per security incident, said ICSA President Peter Tippett. Companies that buy the TruSecure service get an analysis of their network's security



Holyoke Mutual's Josh Turiel: "\$20,000 per incident is a puny sum"

vulnerabilities following an authorized hack by the ICSA's risk assessment team.

Users dismissed the idea of hacker insurance as a ploy by the ICSA to spark sales of its TruSecure service. They also said the \$250,000 annual payment cap wouldn't come close to covering their actual losses in the event of a break-in.

"It's not a good deal. It's too expensive — a maximum of \$250,000 a year and \$20,000 per incident is a puny sum," said Josh Turiel, MIS manager at Holyoke Mutual Insurance Co. in Salem, Mass.

A recent computer-crime study jointly conducted by the FBI and the Computer Security Institute, Inc. in San Francisco

Get your upgrades right here

By Carol Sliwa

Software vendors may hound information technology managers to buy their products, but they don't exactly pound down doors when it comes to alerting them about bug fixes, patches and upgrades.

That left an opening for Intraware, Inc. in Orinda, Calif., which not only resells various vendors' software but also provides a service, called SubscribNet. The service notifies customers about fixes and upgrades and gives them a customized World Wide Web site where they can download them.

Many IT professionals said they have had to track down that information from vendors' Web sites — unless, of course, they discovered a Bug fixer, page 54

WHAT'S IT
GOING TO TAKE
TO GET
A NETWORK
THAT CAN HANDLE
ANYTHING?

WHAT'S IT
GOING TO TAKE
TO GET
A NETWORK
THAT CAN HANDLE
ANYTHING??!

THE POWER OF LIGHT

Internet traffic. Video applications. LANS. WANS. (Whew!) What's it going to take to get you the bandwidth you need to make it all work? Optical innovations from Bell Labs. We're dramatically increasing the capacity of existing networks with advanced optical networking technology. Our new WaveStar™ optical networking system is an entirely new level of innovation. It delivers five times the bandwidth of today's commercial fiber-optic systems, without adding more cable. (That's enough capacity to handle every bit of per-second worldwide internet traffic over a single fiber.) We know how to get you the bandwidth your network needs. As much as you need. Where you need it. **We make the things that make communications work.™**

Lucent Technologies

Bell Labs Innovations

600 Mountain Avenue

Murray Hill, NJ 07974-0636

<http://www.lucent.com>

1-888-4-Lucent



Bug fixer bypasses vendors

CONTINUED FROM PAGE 51

bug the hard way, when the software crashed.

"You never find out about bug fixes unless you jump on their site and do all sorts of searches," said Susan Kwong, an intranet engineer at Charles Schwab & Co. in San Francisco. "They do a good job of posting, but they don't do a good job of notifying us. They only notify us when it's major," said Edward Bianco, chief information officer at Lowell General Hospital in Lowell, Mass.

The Internet has improved the situation. Five years ago, users had to wait for paper-based information or a CD-ROM fix to arrive. Now they can get E-mail, search the Web or participate in a discussion group.

COULD BE BETTER

But corporate users said they still think vendors could do a better job of supplying them with personalized notification as soon as a fix or upgrade comes out.

"I think all companies should do this," said Andrew Dinsdale, manager of Internet services at The Phoenix Group, a database marketing company in Farmington Hills, Mich. "They're doing it on a more generic basis, but not one to one."

Dinsdale said a company might bury information about

a patch he needs in a "long-winded E-mail with information about other patches." Getting customized information about Netscape Communications Corp. software from Intraware has enabled The Phoenix Group to improve its internal processes for updating software.

Schwab also elected to buy its Netscape software from Intraware. Kwong gets E-mail notification about fixes, patches and upgrades and can then access a personalized Web page, where the software that Schwab has licensed can be downloaded.

"I don't have to sit there talking to anyone," Kwong said. "I can do it in the middle of the night if I want to. It's very flexible. I like that."

Longs Drug Stores Corp. in Walnut Creek, Calif., also subscribes to Intraware and likes the added benefit of being able to download Netscape software from a less-trafficked site.

"The Netscape servers are usually pretty busy, particularly during the business days," said Dave Klinzman, director of network technology services at the drugstore chain.

Intraware provides software maintenance services for more than 50 products from 16 vendors, including Netscape, Informix Software, Inc., NetDynamics, Inc. and Open Text

NEW PRODUCTS

INFORIAN, INC. has announced Inforian Quest 98, a multilingual Internet metasearch tool.

According to the Cerritos, Calif., company, the tool streamlines the process of using multiple Internet search engines by taking a single query request and initiating the search request on more than 160 search engines simultaneously. The software also can check for broken and duplicate links and can bypass slow-moving graphics. Users can switch among English, German, Chinese and Japanese.

The product costs \$24.95.

Inforian
(562) 802-0986
www.inforian.com

MIDCORE SOFTWARE, INC. has announced MidPoint Teamer, access software designed to

improve Internet performance over low-throughput dial-up connections.

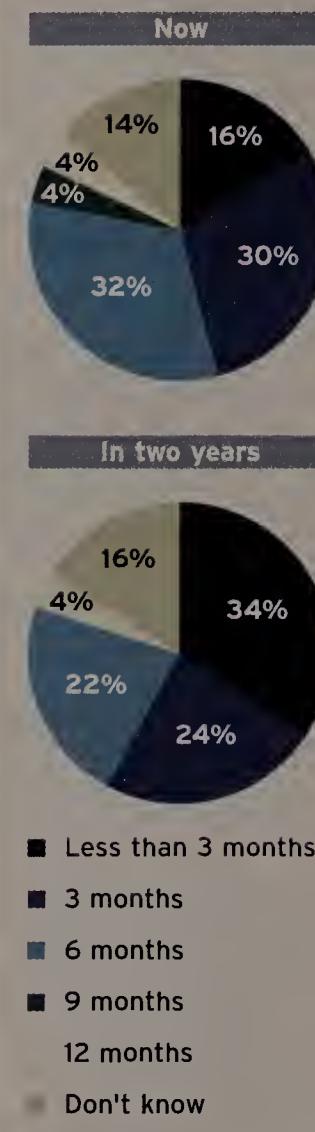
According to the Middlebury, Conn., company, the software improves both viewing and downloading speeds. It works by aggregating the throughput of any mix of analog modems. The modems can be any speed from any manufacturer. A Download Doubler feature can cut download files in half and receive each half of the file through a different connection.

MidPoint Teamer costs \$29.

MidCore Software
(203) 577-5370
www.midcore.com

FRAMEWORK TECHNOLOGIES CORP. has announced ActiveProject 3.0, software for build-

How long are software vendors' product cycles?



Base: Survey of 50 software vendors

Source: Forrester Research, Inc., Cambridge, Mass.

Corp. The cost of the SubscribNet service is 6% of the software list price. □

Balkan news

CONTINUED FROM PAGE 51

destroyed libraries (www.applibcom.com/manu/ingather.htm).

"There have been sites on the Internet that were able to give wire service copy," he said. "At Domovina Net, you have everything. You have real-time broadcasts, you have multilingual renditions of the local papers, of the international press. . . . Basically, everything you want to know is there or linked to the site."

DESPERATE FOR CONTACT

It all started in early 1995, when Tiggelaar met some Bosnians who had fled the onslaught of Serb nationalist forces and were desperate to keep in contact with relatives still caught in the war. Tiggelaar let them use his home computer and Internet connection to send E-mail to Bosnia, where there were rudimentary connections set up via satellite between besieged Sarajevo and the outside world. His Bosnian friends then asked about starting a Web site with news from their country. That site was launched in May 1995.

Domovina Net now attracts 25,000 to 50,000 visitors per week. They download about 8G to 9G bytes of data weekly.

Predrag Jovanovic, an engineering technician now living in the U.S., is one of many Bosnian expatriates who regularly use the site. Though he said he sometimes is frustrated by the nationalist tone of some broadcasts from the region, Jovanovic said, "It's nice to hear news in my native language."

Tiggelaar says he spends 10 to 25 hours each week working on the project and a related effort to develop a high-speed satellite link between Sarajevo and Amsterdam. In addition, he has a full-time job at the BB&H Consultancy in Amsterdam.

The largest chunk of server space for Domovina Net is donated by and housed at an outside Dutch Internet provider, XS4All. But much of the audio and video production, such as converting satellite TV and radio programs to Web RealAudio and RealVideo format, is done in Tiggelaar's home, on several networked computers he also uses for his job.

Tiggelaar said his windows have been smashed three times, apparently by a Bosnian Serb opposed to the site's stance favoring restoration of a multi-ethnic Bosnia. A suspect was arrested the third time and

deported, Tiggelaar said.

The International War Crimes broadcasts are tentatively scheduled to go live on Domovina Net July 14. Those who have been working to have those responsible for war crimes brought to justice are heartened by the effort.

"People who really want this information will be able to get it," even those living in Serbia and Croatia where local nationalist media are unlikely to broadcast the trials, said Riedmayer, who testified before Congress as an expert witness on the genocide in Bosnia. "Everybody will have a chance to come to terms with what happened. That's one of the best chances of preventing a repetition." □

'Thank you for helping our children'

Frank Tiggelaar's first trip to the Balkans, in December 1995, was to bring donated computer equipment to a school in the Croatian village of Luzani. That was shortly after Serb nationalist forces had been driven back five miles across the border to Serb-held Bosnia.

Tiggelaar and Damir Tomicic, who ran another Croatian/Bosnian World Wide Web site in Germany, decided to bring the equipment in themselves after they couldn't get customs documents required by the Croatian government for private shipping companies.

When quizzed about the equipment at Croatian customs, Tiggelaar had only a letter from the Luzani school to show. Two customs officers conferred for a long time, as Tiggelaar worried the venture was about to get very expensive. Instead, Tiggelaar said, the customs officer finally responded, "Thank you, sir, for helping our children," shook his hand and waved him through.

The next problem: The village's telephones used old equipment with a nonstandard dial tone, so the modem Tiggelaar had brought didn't work. He and Tomicic found the region's sole computer store, and some knowledgeable workers there made the necessary modifications to the modems.

The school became Croatia's first school below university level to be connected to the Internet, Tiggelaar said.

— Sharon Machlis

Users scoff at hacking insurance

CONTINUED FROM PAGE 51

found a dramatic increase in the number and severity of incidents in which hackers broke in to corporate systems, often over the Internet. The 241 companies surveyed reported that average dollar losses from each security breach rose to \$2.8 million per incident, a 15-fold increase from the 1996 losses of \$181,400 for each attack. The corporations calculated network downtime, lost worker productivity and data, recovery time and additional manpower hours.

The TruSecure insurance will cover seven types of security breaches:

- Loss of Internet E-mail
- Loss of other Internet service
- Public defacement of the corporate Web page
- Unauthorized external network access via the Internet or the company's firewall
- Loss of Internet transactional system
- Malicious alteration, damage or destruction of sensitive data
- Loss of information by malicious eavesdropping

Gary Lynch, a security analyst at Gartner Group, Inc. in Stamford, Conn., said such a move could open up a Pandora's box, especially for public companies. For instance, it is conceivable that the ICSA underwriters and security team could investigate a site and find "six figures worth of security gaps."

"A firm that has serious flaws could find itself in big trouble if it doesn't have the funds to close the gaps within a reasonable time," Lynch said. "Not only can they not get insured until they're fixed, but the company is in the unenviable position of having to fix the problem or risk a stockholder revolt because they're negligent."

"It sounds like a lot more trouble than it's worth," said a security manager at an oil company in Texas who requested anonymity. "The return on investment

Bay Area CAREERS

will be featured in
COMPUTERWORLD
July 6 in print and on the web
Deadline: July 2 at 3pm

1-800-343-6474, x8000

Annapolis, Md., said he sees potential problems with trying to insure corporate data against hackers: How does a company arrive at a hard and fast, quantifiable metric on the value of its data?

"I don't think hacker insurance is the answer," Gembicki said. "You're putting up a white flag and telling your corporate security staff that you have no faith in them and would rather invest in an insurance policy."

Despite all the hype surrounding computer security, users and analysts agreed that common sense is still the best and most economical answer.

"That means assessing your environment, putting the proper security procedures and policies in place, educating your network managers and end users and enforcing the policies," Turiel said. "Investing in training your own people is the best insurance policy of all." □

Find the best programmers, in the shortest time, within your budget. Guaranteed

Now you can get 10 résumés of qualified, interested candidates that match your specifications, in your hands, in 5 business days. Guaranteed. Whether you're looking for software developers, technical managers or system analysts, we have the best technical recruiting solution in the world.

Completely unlike traditional placement solutions, we offer a revolutionary new way of finding the people you need. You simply

tell us what you're looking for and we find qualified candidates from our extensive pool of professionals. It's quick, confidential and best of all it is guaranteed. If the candidates do not meet your specifications, there is no charge. Otherwise you pay just \$2,995*. And yes, we offer discounts for multiple searches.

This service is brought to you by Computerworld, the world's technology newspaper, and

Career Central™, the recognized leader in professional recruiting and placement services nationwide. Together we're your most productive source of technology professionals. Call us today and we'll begin your guaranteed search immediately.

COMPUTERWORLD
Career Central

www.computerworldcareers.com

10 qualified and interested candidates. 5 business days. \$2,995*. Guaranteed. 1-800-343-6474 x8000

*Fees subject to change without notice.

IS THE COMPANY THAT BROUGHT THE INTERNET TO BUSINESS BEHIND YOUR ISP?



Meet the most powerful team in business network services: Cisco Systems and Cisco Powered Network service providers. Virtually every piece of information that travels across the Internet travels across Cisco equipment. Cisco Powered Network service providers use this very same equipment to bring innovative network services to your business. Get behind the program at www.cisco.com/cpn.

CISCO SYSTEMS



EMPOWERING THE
INTERNET GENERATION™

The Enterprise Network

LANs • WANs • Network Management

Briefs

How satisfied are you with encryption?



Base: Survey of 413 U.S.-based companies

Sources: Computer Security Institute, San Francisco; Zona Research Inc., Redwood City, Calif.

Cisco responds

Cisco Systems, Inc. last week responded briefly to a patent infringement suit recently filed by Lucent Technologies that claimed Cisco infringed on eight of its data networking patents. "We currently believe the Lucent suit has no merit," said Larry Carter, Cisco's chief financial officer, in a prepared statement. "We are also prepared to assert Cisco's intellectual property rights and technology leadership." Lucent seeks unspecified damages and an injunction prohibiting Cisco's alleged use of its patents in the future.

Memco buys AbirNet

As part of the continuing consolidation in the security arena, single sign-on security vendor Memco Software, Inc. in Redwood City, Calif., recently completed its acquisition of AbirNet Ltd., a maker of network intrusion detection software in Dallas. Memco will integrate AbirNet's SessionWall-3, which continuously monitors networks to identify Internet-based attacks, intrusions or internal network abuses with its SeOS software. A spokesman said the first version of SeOS is expected to ship within the year.

Service helps users sift out spam

By Roberta Fusaro

A SMALL Internet service provider in North Carolina is finding that protecting its users from unsolicited E-mail is easier when a team of spammers is watching out for you.

Several hundred of the 5,000 messages received every day by Internet of the Sand Hills are spam, according to Beth Morgan, systems administrator at the Southern Pines, N.C., Internet service provider.

She is using MailFilter from Berkeley Software Design, Inc. in Colorado Springs to try to reduce customer complaints about unsolicited mail.

NOT FOR KIDS

Most of the spam mail is adult-oriented Internet postings, "which was a big concern because many of the customers were families, and their kids were getting stuff like this," she said. The 2-year-old Internet service provider has six employees responding to complaints from its 2,200 customers.

Internet of the Sand Hills previously used software called "sendmail" — which routes about 75% of all Internet mail — to reject mail. Now Morgan depends on Berkeley Software Design's spammers, who canvas the E-mail environment for spam and security information, then update the filters and algorithms in MailFilter via an intranet.

"[The service] is doing a lot of work that I used to do myself," Morgan said.

Morgan said she chose MailFilter because she had been using Version 3.1 of Berkeley Software's BSDI operating system on the company's servers.

MailFilter tests mail based on "spam criterion" such as domain name servers used or subject line and routes the mail to an administrator who can reject it, flag it for the user and send it on with a warning, or quarantine the E-mail message for further use. Administrators auto-

Service, page 58

All-purpose monitors

► Net managers watch other equipment, too

By Patrick Dryden

TO KEEP AHEAD of competitors, San Francisco-based Pacific Gas & Electric Co. sought to manage more than just the devices on its network.

It wanted a single console that could help watch not only routers and servers but also devices outside the information systems realm — anything with a command interface and messaging capability. It uses Max/Enterprise from Boole & Babbage, Inc. in San Jose, Calif., to automate the way the central staff responds to situations reported by power control systems and building management systems as well as by network devices, mainframe services, distributed servers and applications.

Getting "lean and mean" has reduced downtime caused by Monitors, page 58



Users warm up to Gigabit Ethernet

By Bob Wallace

ALTHOUGH Niraj Patel didn't think he would need Gigabit Ethernet until year's end, soaring network traffic persuaded him to get his company, GMAC Commercial Mortgage, an upgrade in February.

Other users also will have visions of faster networks — the Gigabit Ethernet standard was expected to be approved late last week, as Computerworld went to press.

Patel's backbone network had run at 100M bit/sec., but growth in traffic from imaging and video-streaming applications had increased rapidly. Gigabit Ethernet was the easy answer because it provides 10 times more potential bandwidth without an

expensive or painful technology change.

"We had some performance issues running imaged loan documents across our network and wanted to make sure that we have plenty of bandwidth to accommodate other things such as traders watching CNN live

on our trading floor," explained Patel, chief information officer at GMAC in Horsham, Pa.

"Plus our company had grown through acquisitions from 54 people in 1994 to 1,200 now and expects to maintain that pace. So we needed to be performing proactive capacity planning," Patel said.

GMAC uses Gigabit Ethernet equipment from 3Com Corp. and plans to deploy the technology in some of the other buildings on campus, Patel said.

Likewise, with traffic climbing and a bandwidth-hog application in the works, Gigabit Ethernet was a good choice for Sean Gilbert, manager of information systems at credit-card authorization giant Cardservice International, Inc. in Agoura Hills, Calif.

Gigabit Ethernet, page 58



GMAC's Niraj Patel said the upgrade helps to keep up with growth, and to add new services.

DAVID FELDS

Service sifts spam

CONTINUED FROM PAGE 57

matically receive a daily incident report.

Mark Levitt, an analyst at International Data Corp. in Framingham, Mass., said there are upward of 30 or 40 filtering products and/or products with filtering features on the market that deal with unsolicited bulk E-mail. Other vendors include Trend Micro, Inc. and McAfee Software, Inc. But MailFilter is the only one designed as a complete system and backed up

by a service, he said.

Mail filtering products may be useful but aren't the ultimate answer to spam, Levitt said, because "one man's spam is another man's direct mail." Filtering products must be able to be customized so the individual or corporate subscriber can decide on acceptable levels of unsolicited mail, he said.

John Mozina, a representative of the Coalition Against Unsolicited Commercial E-mail,

MORE ONLINE

For resource links on Internet spam, visit *Computerworld online*.

www.computerworld.com/more

noted that filtering products tend to weed out the user complaints that can help webmasters on spammers. "The products can help win individual battles, but they won't win the war," he said.

MailFilter costs \$23.95 per box and for a four-month subscription. The service costs \$2,200 per year after that. □

Users warm up to Gigabit Ethernet

CONTINUED FROM PAGE 57

"We were running at about 30% to 35% capacity already on our [100M bit/sec. Fiber Distributed Data Interface] backbone and were planning an imaging application that we knew would require much additional capacity. So we made sure we would have room to grow," Gilbert said. "We get much better performance now for our merchant management and 3270-emulation applications as well." The company uses Gigabit Ethernet equipment from Cabletron Systems, Inc.

1G BIT/SEC.

Data traffic can be sent over fiber-optic cable at up to 1G bit/sec. with Gigabit Ethernet.

It is a logical extension of 25-year-old Ethernet technology and can be installed with

minimal disruption.

Although the standard was expected to be approved just last week, Gigabit Ethernet has been used for more than a year to build backbone data networks

MORE ONLINE

For resource links on Gigabit Ethernet, visit *Computerworld online*.

www.computerworld.com/more

with up to 10 times more speed than today's widely used 100M bit/sec. Fast Ethernet backbones.

The market for Gigabit Ethernet switches and adapter cards is poised for huge growth; North American switch sales are projected to skyrocket from

\$21.7 million last year to \$1.45 billion in 2001, according to a May research report by Dataquest in San Jose, Calif.

Gigabit Ethernet also can provide faster pipes into servers. But users who consider that should first test their operating system and their applications to be certain they can handle the extra speed, said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy.

Although it has helped Patel and Gilbert with their big-bandwidth applications, Gigabit Ethernet isn't for the masses.

"You need 300 to 500 switched desktops to [fill] one Gigabit Ethernet port," Nolle estimated. "And given that 80% of all desktops aren't switched, Gigabit Ethernet isn't for everyone." □

NEW PRODUCTS

GADZOOX NETWORKS, INC. has announced the Gibralter GL, a modular Fibre Channel hub for the midrange server market.

According to the San Jose, Calif., company, the hub was designed for Windows NT and Unix servers whose applications require the high performance of Fibre Channel but whose system needs are for lower storage capacities and fewer ports.

It can house up to six ports. The ports may be populated with any mix of copper and/or optical Gigabit Interface Converters.

An unpopulated hub costs \$3,995. Copper Gigabit Interface Converters are \$60 per port, and short-wave optical

GBICs are \$250 per port.

Gadzoox Networks
(408) 360-4950
www.gadzoox.com

STARLIGHT NETWORKS, INC. has announced StarCenter, software to manage the storage, delivery and access of networked streaming media — usually video — applications.

According to the Mountain View, Calif., company, the client/server software brokers requests between application clients and media servers, delivers different content versions based on available bandwidth and can report on usage trends.

Pricing for StarCenter begins at \$25,000.

Starlight Networks

(650) 967-2774
www.starlight.com

IP METRICS SOFTWARE, INC. has announced NIC Express, load balancing software for network interface cards.

According to the Euless, Texas, company, it improves the fault-tolerance and performance of Windows NT network servers by connecting multiple cards in an array. If a card fails, NIC Express redistributes the load without loss of connection. It alerts via SNMP traps and can give performance gains up to near-Gigabit Ethernet speeds. It costs \$195 per server.

IP Metrics
(817) 358-1007
www.ipmetrics.com

All-purpose monitors watch the whole shop

CONTINUED FROM PAGE 57

human intervention, freed staff for other jobs and saved \$2.5 million in the past two years, said Joe Soldevila, automation project manager at PG&E.

Other users, linking IS and business groups to find a competitive advantage in technology, also are interested in extending traditional management tools to handle diverse devices, said Bill Gassman, an analyst at Gartner Group, Inc. in Stamford, Conn.

The same techniques that warn information systems operators about an impending server crash can also warn them about cooler problems at one of a retail unit's stores, for example, so field technicians can fix it before the ice cream melts.

CUSTOM AGENTS

Most user and vendor activity focuses on developing custom agents for big management suites and adapting standard Simple Network Management Protocol (SNMP) tools, Gassman said.

Atlanta's metropolitan transit authority is working on satellite-linked agents for Unicenter from Computer Associates International, Inc. so central operators can track buses on a console displaying a city map.

Some military organizations are even adapting Unicenter to keep track of vehicles and troops, said Sam Greenblatt, vice president of advanced technology at CA in Islandia, N.Y.

Every door at one Swiss bank has a network address and agent so security officers can log activity from a Tivoli Man-

agement Environment (TME) console and tell if one is left ajar, said Martin Neath, senior vice president of product development at Tivoli Systems, Inc. in Austin, Texas.

Custom agents make sense in such special circumstances, Neath said, but Java is the way to go for broad support. For example, he said a telecommunications company is testing a Java agent for TME so its telephones can download not only services, but also applets that configure and diagnose the equipment.

Yet there are simpler ways to check on remote devices without installing a complex suite — if the device contains an embedded operating system.

For example, SNMP Research International, Inc. offers a translator called the Legacy Adapter to Internet. This tiny box connects to a device's serial port, converts incoming ASCII messages to a standard management database and provides meaningful status information over Ethernet to any SNMP network management console.

Telecommunications companies use it to manage public branch exchange systems, said Jeff Case, chief technical officer at SNMP Research in Knoxville, Tenn. An Australian railroad uses it to monitor infrared sensors mounted on its tracks, so safety operators can detect overheated axles as trains pass overhead. Alerts signal which cars should be removed and repaired before breakdown or, even worse, derailment, he said. □

Snapshot

Reasons for buying business continuity services

(1 = least important, 5 = most important)

Virus protection	3.8
Data security	3.8
Insurance	3.8
Credibility with clients	3.7
Reliance on networks	3.5
Risk of hardware or software failure	3.4
Failure of internal backups	3.3
Year 2000 problem	3.3
Risk of fire or flood	3.2
Risk of power failure	3.2

Base: Random survey of 100 Fortune 1,000 companies

Source: Input, Mountain View, Calif.

Software

Databases • Development • Operating Systems

Briefs

Where the consultants are

Number of consultants in the Americas for each software application specialty:

SAP	14,100
PeopleSoft	6,250
Oracle	5,250
Baan	2,000
J. D. Edwards	1,500
Lawson Software	1,050
SSA	800
Geac	750
QAD	750

Source: Gartner Group, Inc., Stamford, Conn.

Word printing bug

A glitch in Versions 7.0 and 7.0A of Microsoft Corp.'s Word for Windows 95 can turn a drag-and-drop printing operation into a crash-and-burn event that vaporizes all unsaved data, BugNet reported last week. BugNet, the top PC bug help site on the Internet (bugnet.com), said Word can crash when a user drags a file icon to a printer icon. Microsoft said the problem could be avoided by saving the document first or by printing from the file menu instead. The bug can be remedied by editing the registry entry to make Word ask for a prompt to save changes when using the shortcut method to print.

Data modeling in suite

IBM and Platinum Technology, Inc. last week announced a joint development and marketing agreement that will integrate Platinum's ERwin data modeling software into IBM's VisualAge server-side application development suite. Ed McLaughlin, a vice president at Oakbrook Terrace, Ill.-based Platinum, said ERwin holds a 42% share of the data warehouse design market.

IBM's DataAtlas modeling software will be included in a new release of ERwin due later this year.

ADP overhauls service centers

► New system should pay for itself in two years

By Kim Girard

WHEN HOWARD KOENIG arrived at Automatic Data Processing, Inc. (ADP) two years ago, he pondered a puzzling problem for the paycheck processing giant: how to overhaul legacy systems that hampered call center service and threatened customer retention.

Although the company's 40 regional service centers — staffed by 8,000 users who handle 80 million calls annually — are ADP's bread and butter, users shared no common software to track

human resource records, benefits information and payroll services for the company's 400,000 clients, said Koenig, ADP's corporate vice president.

Some service center representatives used mainframes; others worked on sluggish PCs. They tapped information from 40 nonintegrated databases and toggled among 350 mainframe screens. They couldn't work well in teams or share data.

ADP is undergoing a dramatic technology turnaround that is boosting service levels.

Clear Support customer support system and a new system that links computers to a Lucent telephone switch so customer data immediately displays on a PC with an incoming call. ADP hired Cambridge Technology Partners to help integrate the system, which is expected to pay for itself within two years.

"That's a very reasonable and, frankly, a conservative number," said Carter Lusher, an analyst at

"We have associates in nine cities, and we were finding timely and accurate communications difficult," said Jonathan Nord-Crane, a technical services manager at ADP in Atlanta.

But ADP is undergoing a dramatic technology turnaround that is boosting service levels and shortening call response times to under 10 seconds.

The company, which has \$4 billion in annual revenue, committed more than \$35 million to hardware, software and services — including 50 Microsoft SQL servers running on Windows NT, Clarify, Inc.'s

Clear Support customer support system and a new system that links computers to a Lucent telephone switch so customer data immediately displays on a PC with an incoming call. ADP hired Cambridge Technology Partners to help integrate the system, which is expected to pay for itself within two years.

"That's a very reasonable and, frankly, a conservative number," said Carter Lusher, an analyst at



ADP vice presidents Howard Koenig and Helen Roberts are overseeing the \$35 million systems conversion

Gartner Group, Inc., a Stamford, Conn.-based consultancy.

So far, hauling information from the legacy mainframe environment and making it accessible on one system has proved the biggest challenge, Koenig said.

"Some of our applications were OS/2-based; some were IBM mainframe," he said. "Particularly for the IBM legacy mainframe stuff, the gateways to our legacy data didn't exist — and still don't."

"The challenges were just enormous," said Helen Roberts, vice president of operations and client services at ADP. She is an 18-year ADP veteran who passed over a year 2000 project to take on the call center overhaul. "There were integration issues and so many departments," she said.

The project kicked off last July, and the company expects to roll it out to 3,000 users by the end of the year.

ADP, page 62

Win 98 makes sense for some. Here's who and why

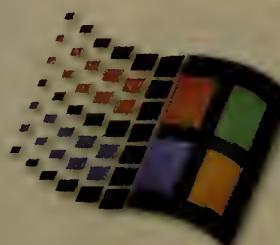
Systems administrators would do better with NT

By Kenneth I. MacLeish

TO ENTICE SYSTEMS managers into installing Windows 98 across their users' systems, Microsoft Corp. is positioning the product as a uniform replacement for the five variations of Windows 95 in common use. Having everyone on the same operating system is the dream of any administrator, but even if Microsoft doesn't repeat its past tendencies to deliver product updates later, is Windows 98 worth the hassle? After all, it is mainly a collection of bug fixes and minor performance enhancements.

Systems administrators, page 62

PRODUCT REVIEW



► Windows 98

MICROSOFT CORP.

Redmond, Wash.
(800) 426-9400
www.microsoft.com

Price: \$109

Benefits seen for power users, remote offices

By Chris DeVoney

IS WINDOWS 98 worth the upgrade? Although Windows 98 is mature enough and offers enough benefits to come with any new computer, it doesn't offer enough benefits to warrant automatically upgrading any machine.

There are some major features, such as faster performance and changes in the user interface, that impact all users.

Programs such as Microsoft Excel and Word, for example, load faster under Windows 98. But the time difference is just a few seconds.

Benefits, page 62

Gateway E-4200 Desktop

**Affordable
Pentium® II Processor.**

**Reliability, Stability
and Manageability.**

**Long-Term
Cost Control.**



Business power users can stop waiting.

The E-4200 series PC delivers next-generation Intel® Pentium® II processor 350MHz and 400MHz technology at an unbelievable value. Plus high-end performance is made possible as the system bus speed is increased to 100MHz and AGP video improves with the Intel 440BX AGPset. Combine all this fresh technology with industry-leading manageability features and you not only extend system life cycles, but also reduce total cost of ownership.

The E-4200 is the ideal managed desktop for intense business applications.

Improve your bottom line and end user performance with custom configured E-4200 series PCs.

Isn't it great when you can meet your wants and needs at the same time?



GATEWAY™ E-Series E-4200 400 High-Performance Desktop PC

- Intel® 400MHz Pentium® II Processor
- 128MB Error Checking and Correcting (ECC) SDRAM
- VX900 .26 Screen Pitch 19" Monitor (with 18" viewable)
- ATI RAGE PRO TURBO™ 2X AGP with 8MB
- 8.4GB SMART Ultra ATA Hard Drive
- 13X min/32X max CD-ROM Drive
- 3Com® 10/100 Ethernet Adapter
- DMI 2.0 Compliant
- Intel LANDesk® Client Manager 3.1

\$2699 Gateway GoldValue Lease \$95/mo.*



888-888-0382
www.gateway.com



©1998 Gateway 2000, Inc. All rights reserved. Gateway and the Gateway stylized logo are trademarks of Gateway 2000, Inc. Gateway 2000 Major Accounts, Inc. is a wholly owned subsidiary of Gateway 2000, Inc. The Intel Inside Logo, Intel, LANDesk and Pentium are registered trademarks of Intel Corporation. All other brands and product names are trademarks or registered trademarks of their respective companies. Some products and services may not be available for all international locations. Many Gateway products are custom engineered to Gateway specifications, which may vary from the retail versions of the software and/or hardware in functionality, performance or compatibility. All prices and configurations are subject to change without notice or obligation. Prices do not include shipping and handling or any applicable taxes. *Leasing arranged by independent leasing companies to qualified commercial customers. Lease payments based on 36-month term. Lease terms subject to change without notice or obligation.

Systems administrators

CONTINUED FROM PAGE 59

The quick answer is "It depends." For Windows 95-based companies that don't plan to switch to Windows NT any time soon, the advantages of Windows 98 will typically be worth the installation effort. But for companies that use Windows 3.1 or plan to switch to NT in the next year, it is better to bypass Windows 98.

Systems managers who will make the Windows 98 upgrade will be pleased that Microsoft has added installation enhancements and maintenance tools.

For installers rolling out Windows 98 to hundreds or even

For companies that use Windows 3.1 or plan to switch to NT in the next year, it is better to bypass Windows 98.

thousands of systems, Microsoft is developing the Windows 98 Image Preparation tool. The tool (currently in beta testing and not scheduled to accompany the initial Windows 98 release) should speed and streamline the configuration process.

The tool removes all registry references specific to the host PC, then lets you work with cloning software, such as Binary Research International's Ghost, to load an image of the operating system and applications on each user's PC. When a user's PC is restarted, Windows 98 detects its specific hardware and sets up the registry accordingly. The associated Batch 98 tool allows the creation of a script to automate the process and provide network settings.

A defragmenting utility,

called the Intel Application Launch Accelerator, is an adaptive program that tracks and groups frequently used files to allow quicker starts. Automating those sorts of routine maintenance tasks can be an enormously effective part of a preventive maintenance program. Device drivers are frequently the bane of support staff, who often waste hours browsing the Internet for the correct sound, video or network card driver. Microsoft has tried to improve that situation in several ways with Windows 98.

One way is by promoting the Win32 Drive Model, which is intended to unify drivers for Windows 98 and NT.

That may help future hardware, but Microsoft also

offers help for current systems. For Internet-connected PCs, the Windows Update feature seeks to automate the search/download/install process by connecting to Microsoft's database of compatibility-tested devices and then automatically detecting, downloading and installing the correct drivers. (Microsoft says it doesn't record any user configuration data when this feature is used.)

Finally, Microsoft has an uninstall option during setup that will let you revert to your previous Windows installation in case there is a BIOS or other irreparable conflict with your PCs. Be sure to use it.

Once you have successfully installed Windows 98, you can take advantage of some new maintenance features.

For example, the Dr. Watson troubleshooting utility (already a feature of NT) is a big plus for a corporate information technology staff. The user-friendliness of Dr. Watson's interface has been stepped up, with dialog boxes that are more clear and informative than the code-laden variety in NT. The improvements should help harried support staff to not only fix problems, but also proactively and adaptively prevent them.

AUTOMATED TASKS

The new Maintenance Wizard controls tasks such as automated disk scanning, deleting unwanted files and defragmenting, and it helps speed the boot process by offering limited editing of unwanted start-up programs.

One of the best enhancements — already in Windows 95 OS Release 2 — is the FAT 32 file system, which allows more efficient space usage and improved performance with drives larger than 2G bytes. That should slow the demand for more disk media.

Microsoft has added a simple conversion tool to make it easy to use FAT 32 on existing systems. You can convert to FAT 32 during Windows 98 installation or do it later.

However, note that Windows NT doesn't yet support FAT 32, so this feature shouldn't be used on dual-boot PCs.

The built-in support for Universal Serial Bus (USB) — which is improved from Windows 95 OS Release 2 — and IEEE 1394 (Firewire) devices isn't likely to make a difference to many existing installations because USB devices are still scarce and because Firewire devices are practically nonexistent. But the potential for those fast interfaces, at 12M bit/sec. for USB and up to 400M bit/sec. for Firewire, is enormous. With Windows 98, you will be ready for them.

One advantage that Windows 98 doesn't bring is better security. Windows 98 has the same weak password protection and open, unsecured access as Windows 95 — it is no Windows NT surrogate.

Although Windows 98 isn't a necessary upgrade for most companies, it does have benefits for some, and Microsoft has improved the tools to install and maintain it — welcome support for systems administrators. □

MacLeish is technical specialist at Client/Server Labs (www.csllc.com) in Atlanta, a primary test partner of Computerworld.

Benefits seen for some

CONTINUED FROM PAGE 59

Unfortunately the biggest logjam, start-up of the operating system, isn't improved over Windows 95.

So who should move?

SELECTIVE USERS: YES

Certain users should step up to Windows 98: power users, those who use the World Wide Web heavily and users with disabilities.

Power users, who run several applications at once, can harness the various performance improvements, including the better system response when switching among tasks. Web users can take advantage of the improved TCP/IP stack, which moves information faster between the computer and the network or Internet.

Disabled users can more easily control Windows accessibility features with a new wizard. And Windows 98's screen magnifier makes the display readable for those with mild to moderate visual impairment.

DEVELOPERS: YES

Application and Web development tools load faster, and developers will depend on Windows 98's improved responsiveness. The ability to support several monitors at once (an ability supported on only a handful of video boards) can make developers more productive by displaying their programs or scripts on one monitor and the running program/Web page on a second monitor.

ROAD WARRIOR: MAYBE

Because Windows 98 staggers on resource-poor notebooks, don't bother upgrading if your notebook's disk drive has less than 50M bytes of free space or the system has less than 32M bytes of RAM. If you have the

resources, Windows 98 does a better job handling PC cards with more than one function, such as combination network/modem cards and the new 3.3V cards. A wizard makes Dial-Up Networking easier; TCP/IP-based communications are faster; and support for virtual private networking and using multiple modems for faster connections is built in. Additionally, the FAT 32 file system should free up valuable disk space for notebook users working in stand-alone environments, far away from the network and its backup capabilities.

REMOTE OFFICE: YES

Because workers in remote offices don't have the support of a local help desk, Windows 98's robustness and its diagnostic tools make it an ideal choice for remote office users. If a problem occurs, Windows 98 can easily bypass an errant device driver, easily edit the start files to diagnose problems and give more detailed debugging information via the improved Dr. Watson utility.

AVERAGE CORPORATE DESKTOP: NOT YET

Corporate managers want Windows 98 to reduce desktop-related support, maintenance and operation costs. Windows 98 might do that, but not yet. Performance benefits aren't enough to justify the upgrade for the corporate user. And many users don't need a user interface that doubles as a browser. But you should revisit the upgrade issue late this year for desktops that aren't moving to Windows NT. □

DeVoney is a freelance writer in Seattle. He can be reached at chrisd@cybercritic.com.

NEW PRODUCT

SYMANTEC CORP. has announced Symantec Mobile Update, software that lets mobile users update critical files, such as presentations or price lists, via E-mail.

According to the Cupertino, Calif., firm, the client/server software uses E-mail gateways to detect and deliver changes made to select networked files. Binary compression is used to shrink

spreadsheet or text document changes before they are sent as E-mail attachments. When the E-mail attachments are launched, the software automatically applies all changes on the user's hard drive. It costs \$4,995 for a 100-user server license and \$50 per client.

Symantec

(408) 253-9600

www.symantec.com

ADP overhauls service centers

CONTINUED FROM PAGE 59

The company tested the system with six people before sending it to engineering to be customized.

"Typically, pilot [projects] send users into hiding," Roberts said. "This had tremendous pull."

Tom Mueller, a client services manager in ADP's Atlanta office, said he now simply clicks the mouse for a full view of who is working on an account, a description of pending issues and customer call status.

Mueller can toggle among five screens easily on his Windows NT PC and use one interface to drill down to the main-

frame to access client payroll history.

"You can be a lot more proactive with your client," said Mueller, who recently tested new software in a trial lab at ADP headquarters that lets representatives click on a customer name to automatically dial that person's telephone number.

Along with keeping workers happy, Koenig said, the technology is key to keeping ADP on top in payroll outsourcing.

"Client service expectations are rising," he said. "We need to be considered a world-class service company." □



Feeling a little up in the air about your database?

Then come back down to earth—with Caché, the post-relational database for accelerated transaction processing. You can realize immediate performance improvements for your current SQL applications—with Caché's seamless integration. And, you can rapidly develop powerful new applications—with Caché's advanced object technology and speedy database-to-web connectivity. Built with a potent transactional multidimensional data engine, Caché is furiously fast, enormously scalable, and staunchly reliable. Plus, it is easy to implement—on Windows 95 and NT, OpenVMS, and major UNIX platforms. Join the InterSystems family of over 1.5 million database users worldwide. Call us at (617) 621-0600. Or visit www.intersys.com/info.



The post-relational database. For new dimensions of transactional performance.



Every company,



every group,

every individual is unique.

Which is why we provide unique customized training.

If 14 years of experience have taught us anything, it's that today's diverse technology has challenged each and every company — along with each and every employee. And you're responsible for ensuring that their training will meet your company's unique needs. ExecuTrain understands. So we've developed a unique solution called ESP, ExecuTrain Solutions Partnership. First, we get to know you and your company. Then we custom-tailor our training solutions to your needs, with a wide range of training services, from pre- and post-testing to customized courseware and more. This, combined with expert instructors, CBT and Internet-based instruction, enables us to develop, deliver and support training solutions that fulfill your company's objectives. And we consistently deliver this unmatched level of service to every one of our more than 200 locations around the world. So call us at **800-90TRAIN ext #35**, or visit our Web site at www.executrain.com/unique. And discover how our unique training can enhance the performance of every company, every group and every individual.

 ExecuTrain.

Computer training as unique as you are.

Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

STILL ALIVE?

Are network computers viable for your organization?



* 34% of those said they will standardize in a year

Base: Survey of 163 IS managers responsible for an average of 3,500 users with host access
Source: MSI Consulting Group, Seattle

Keyboards cleared

Digital Equipment Corp. in Maynard, Mass., has been exonerated in a computer keyboard liability case filed against the company.

A jury examining evidence presented in the case in a U.S. District Court in New York earlier this month found against nine plaintiffs who had sued Digital. The plaintiffs had claimed that their upper-extremity injuries were caused by the company's keyboards.

Xeon-based servers

Data General Corp. last week announced its AV 2500 server, which features support for up to 64 of Intel Corp.'s Pentium II Xeon chips.

Single systems can support up to 64G bytes of memory and more than 100T bytes of Fibre Channel storage. Prices for the server range from \$100,000 to \$2.5 million.

300 MHz for \$1,100

IBM is set to debut a 300-MHz Aptiva consumer PC that costs about \$1,100. The Aptiva E85 has a microprocessor from Advanced Micro Devices, Inc., 64M bytes of RAM, a 6.0G-byte hard drive and a modem. It costs \$1,099.

IBM is the first major PC maker to ship a PC with the new AMD processor. Customers can also choose a \$1,799 E96 model with a 333-MHz Pentium II chip from Intel Corp. and 96M bytes of RAM.

For sale: Small used mainframes

By Jaikumar Vijayan

IBM HAS an offer for midsize corporations looking for the performance and capacity of small mainframes but unwilling to put down the dollars required to buy a new one.

The company last week

run less-crucial applications or to add capacity quickly to handle their year 2000 work, said Peter Matthews, IBM's director of global remarketing.

Under the program, IBM's partners will sell or lease used first-generation CMOS-based machines and used storage and

midrange systems, PC servers and storage subsystems — since 1987.

So far, IBM's direct sales force has handled the marketing of large refurbished mainframes, while its business partners have focused on the smaller systems.

The value of used mainframe equipment depends very much on the application environment. The lower hardware costs make it appealing for users looking to quickly add capacity or off-load less-critical applications from their main systems. But users looking for pure performance may not see much benefit because of software and support costs, analysts said.

So far, the market for used mainframe systems has been muted, and IBM is the only company offering the systems. A survey last year by Soundview Financial Group, Inc. in Stamford, Conn., revealed that only 21% of mainframe sites surveyed said they would spend a larger portion of their budget on used equipment than the

For sale, page 68

Sale and leasing of refurbished IBM equipment:

- Lets customers buy or lease used IBM PCs, PC servers, S/390s, RS/6000s, AS/400s, networking or storage devices
- Allows for custom reconfiguration
- Qualifies for IBM service and support
- Established since 1987

launched a program under which its business partners and resellers for the first time will offer small — 170 MIPS and smaller — refurbished CMOS-technology-based S/390 mainframes to small and midsize businesses.

The program also will benefit companies that already have IBM mainframes but want an inexpensive way to add more to

networking products for as much as 20% less than the cost of buying new hardware. The moves are part of the company's ongoing efforts to find new markets for used mainframes — systems that have been traded up for newer ones or returned to the company at the end of their lease periods. IBM has been reselling used equipment — including mainframes,

"We are not cannibalizing other business."
— Rob Howe,
CompUSA

BUILD-TO-ORDER

CompUSA streamlines line of PCs

By Cheri Paquet

MAJOR U.S. RETAILER and reseller CompUSA, Inc. last week announced a streamlined PC series that aims to strengthen the company's ability to compete in the build-to-order computer market.

CompUSA last week also announced an agreement with Tandy Corp. to purchase Tandy's Computer City subsidiary in a cash and note transaction valued at \$275 million.

On the manufacturing side, Dallas-based CompUSA is competing only with other build-to-order manufacturers and isn't in direct competition with other major PC makers whose products it sells, according to Rob Howe, vice president and general manager at CompUSA PC.

CompUSA, page 68

Desktop market on the move

► PC Expo debuts variety of hardware, tools

By April Jacobs

IN RECENT WEEKS, there has been lots of movement in the desktop, workstation and PC server market, with Compaq and Digital planning to merge lines, IBM piping in with managed desktops and Hitachi entering the PC server market.

Hitachi PC Corp.'s entrance into the commercial server market — which followed closely on the heels of Toshiba America Information Systems, Inc.'s — is being downplayed by industry analysts. They said the stranglehold top vendors such as IBM and Compaq Computer Corp. have on the market will make it difficult for second-tier vendors to thrive.

"This is something that all the Japanese vendors have been

Hardware unveiled at PC Expo included:

- Compaq servers and workstations
- IBM commercial desktops with management tools on-board
- Hitachi PC servers

in," said Amir Ahari, an analyst at International Data Corp. (IDC) in Framingham, Mass. "So far, the second-tier players have shown very little ability to seriously challenge the top four." The most recent to break in was Dell Computer Corp.,

which became a top-tier player several years ago.

On the desktop front, IBM has introduced an addition to its 300 line of PCs. Dubbed the 300GL, it costs \$1,400 and has a Pentium II processor and on-

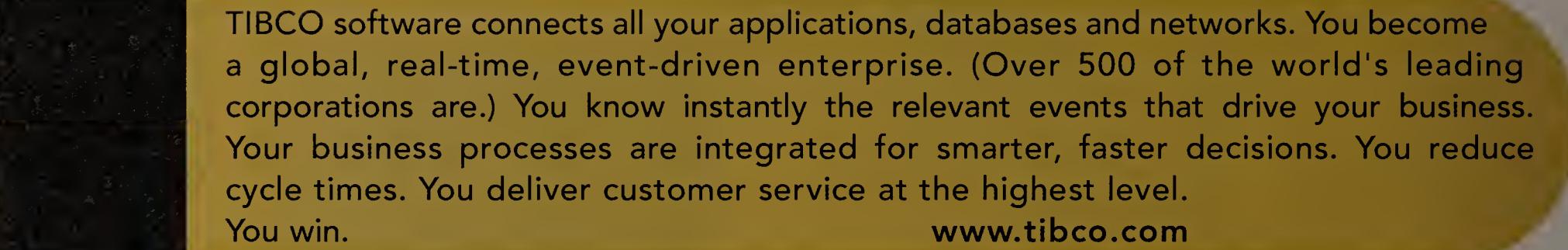
board management that is equipped with the company's Universal Management Agent (UMA). That allows network or PC administrators to service the machine remotely for software upgrades or system checks. There also is a remote wake-up feature.

ALL PART OF THE STRATEGY
IBM's management-enabled desktops are part of an overall strategy to give customers more than hardware, said IDC analyst [CW, June 22]. □

Roger Kay. IBM isn't alone in doing so, he said. He cited Palo Alto, Calif.-based Hewlett-Packard Co.'s combination of systems management and hardware as an example.

"For a long time, [IBM officials have] had management and are increasing their focus on it, and they have had the goods, but haven't marketed it widely enough," Kay said.

On the server and workstation front, Houston-based Compaq has announced — as expected — that it will merge Digital's lines with its own, under the Compaq brand name. The new PC lineup will be almost entirely based on Compaq's current offerings, with additions to the server and workstation lines using Digital's Alpha-based platform for both Windows NT and Unix systems [CW, June 22]. □



TIBCO software connects all your applications, databases and networks. You become a global, real-time, event-driven enterprise. (Over 500 of the world's leading corporations are.) You know instantly the relevant events that drive your business. Your business processes are integrated for smarter, faster decisions. You reduce cycle times. You deliver customer service at the highest level. You win.

www.tibco.com

And that should definitely put a smile on your face.





STOCKHOLM FRANKFURT LUXEMBURG VIENNA ZÜRICH MELBOURNE SYDNEY HONG KONG SINGAPORE TOKYO

© 1998 TIBCO. All rights reserved.

Iomega expects loss, layoffs

By Mary Lisbeth D'Amico

TROUBLED Iomega Corp., maker of removable disk and tape drives, including the Zip drive, said it expects a net loss of \$25 million to \$35 million for the quarter that ended Saturday. That is a bigger loss than originally anticipated.

Iomega also announced cost-cutting measures, including a layoff of up to 700 people to save \$50 million, which it said would help generate a profit in the fourth quarter. However, Iomega doesn't expect a profit

for fiscal 1998, the statement said.

The Roy, Utah-based company partly attributed the anticipated poor results to lower margins from sales of its products through resellers. Iomega reported a large loss in the previous quarter, blaming lower shipments of its products.

Other cost-cutting measures include hastening efforts to shorten the company's supply chain and reduce inventory and cutting production costs for its line of Zip drive products.

Although it is selling increas-

ing numbers of Zip drives through resellers known as original equipment manufacturers (OEM), the company must adjust its business model to cope with the higher-volume, lower-margin OEM business, Iomega said.

One such OEM is Compaq Computer Corp., which recently decided to include a 100M-byte Zip drive as a standard feature in several of its new Presario desktop computers. □

D'Amico writes for the IDG News Service in Munich.

Sun, IBM debut Web bundles

By Jaikumar Vijayan

CALL IT an effort to take some of the grunge work out of Internet serving.

Sun Microsystems, Inc. and IBM recently announced software and hardware that makes it easier for Internet service providers to install and deploy World Wide Web servers.

IBM's new RS/6000 Power-solution package features an RS/6000 server, a secure version of its AIX software for service providers, Lotus Development Corp.'s Domino Go Webserver and one year of consulting services at prices that start at less than \$10,000.

Mountain View, Calif.-based Sun next month will start shipping a new version of its Solaris operating system aimed specifically at service providers.

The software will come with

new security features, configuration and replication tools, browser-based administration software and performance monitoring tools. Prices start at \$5,999.

Preconfigured bundles such as those help service providers cut down the time and effort required to manage large Web server networks, while freeing them up to focus on service delivery, according to Jean Bozman, an analyst at International Data Corp. in Mountain View, Calif.

"By bundling the functionality at the operating system level, Sun has tuned Solaris specifically to meet the needs of service providers and their customers," said Audrey Curtis, a vice president at AT&T Labs' Internet Applications Services Laboratory in Basking Ridge, N.J. □

For sale: Small used mainframes

CONTINUED FROM PAGE 65

previous year. Part of the reason for the low interest in used systems is that mainframe users seeking additional performance typically go with the latest technology and processors rather than paying less for older technology, said Dan Kaberon, Parallel Sysplex project manager at Lincolnshire, Ill.-based Hewitt Associates, Inc. Hewitt is one of the country's largest out-sourcers of human resources management services.

"Our capacity requirements have always been at the level where we have needed to get the biggest machines and the

newest generation we can get," Kaberon said.

But Hewitt — an all-CMOS-mainframe shop that uses a six-system mainframe cluster — has a handful of refurbished mainframes for less-critical functions such as a coupling facility, Kaberon said.

Although the lower hardware cost could help bring used systems into small and midsize companies, sometimes the price difference between used and new systems isn't all that great when other factors such as maintenance and software costs are taken into account, said

Rick Baylor, a regional sales manager at Real/ESP, an IBM partner in Wilton, Conn.

The cost of maintaining older mainframes, especially IBM's pre-CMOS generations, takes much of the luster off used systems, said Carl Greiner, an analyst at Meta Group, Inc. in Stamford, Conn. Maintenance costs between \$17 and \$100 per MIPS for some of IBM's older water-cooled systems compared with about \$20 to \$25 for CMOS systems, he said. So the market for older refurbished systems in particular has begun drying up, Greiner said. □

NEW PRODUCTS

WORKSTATION TECHNOLOGIES, INC. has announced the Iliad, an Ultra Peripheral Component Interconnect-based workstation.

According to the Fremont, Calif., company, the workstation runs the Solaris 2.6 operating system from Sun Microsystems, Inc. It is available with a 300-MHz processor, a 4.3G-byte ultrawide SCSI disk drive, 64M bytes of RAM, a 32-speed CD-ROM drive and a 19-in. color monitor. The workstation costs \$4,250.

Workstation Technologies
(800) 663-1966
www.wkstech.com

THE PANDA PROJECT, INC. has announced the Rock City ST-400, a PC featuring either a 400- or 350-MHz Pentium II processor from Intel Corp.

According to the Boca Raton, Fla., company, the PC comes with six expansion slots, up to 384M bytes of SDRAM, a 56K bit/sec. modem, a three-dimensional sound card and a 100-MHz bus. The unit's most distinguishing features are its 10.5-in. aluminum cube design and its "on point" mounting setup that gives it the illusion of hovering above its desktop perch. Optional colors include cobalt blue and black with an interconnected lightning motif.

A system with a 350-MHz processor starts at \$2,395, and one with a 400-MHz processor starts at \$2,595.

The Panda Project
(888) 762-2489
www.rockcity.net

CHEM USA CORP. has an-

nounced the 3300T, a notebook featuring either a 266-MHz Intel Corp. Mobile Pentium processor or an Advanced Micro Devices, Inc. 300-MHz Mobile K6 processor.

The Newark, Calif., company said the system comes with from 32M bytes to 96M bytes of RAM, 512K bytes of cache, a 12.1-in. SVGA screen, a 64-bit Peripheral Component Interconnect graphics engine, a 24-speed CD-ROM and 16-bit, three-dimensional surround sound. It also can accommodate one Type III or two Type II PC cards. Other options include an external charger, a car adapter and a 56K bit/sec. PCMCIA fax/modem. Prices start at \$1,449.

Chem USA
(510) 608-8818
www.chemusa.com

Gateway fined for violations

By Nancy Weil

GATEWAY 2000 has been fined \$402,000 for violating export control requirements by shipping PCs to 16 countries, including Iran, Syria and China, and for falsifying records, the U.S. Department of Commerce Bureau of Export Administration said in a statement.

On 30 separate occasions between February 1992 and April 1993, Gateway exported computers without valid export licenses, the department alleged.

Besides being aware of the license requirement, Gateway 27

times filed shipper's export declarations containing false or misleading statements, the department alleged.

All told, Gateway is accused of 87 violations of federal export administration regulations. The company cooperated with the department investigation and has agreed to pay the civil penalty to settle the allegations, according to the government statement.

Gateway couldn't be reached for comment at press time. □

Weil writes for the IDG News Service in Boston.

CompUSA

CONTINUED FROM PAGE 65

"We are not cannibalizing other business," he said.

The American Pro line was designed for CompUSA's core customers — small to medium-size business users and high-end users employed in corporations, education or government agencies. The computer company combined its American Pro and American build-to-order lines, announced last September, into a single product line, the "new" American Pro series,

to offer a full range of prices and features, CompUSA said.

The line will offer build-to-order configurations with processors ranging from a 266-MHz Intel Celeron to a 400-MHz Intel Pentium and priced between \$800 and \$4,000.

"Now there are two choice trails: the flexibility series, which allows customers to use slots and bays to configure their system, and the integrated series, which gives users video and sound options," Howe said. □

Paquet writes for the IDG News Service in San Francisco.

The CEO speaks; the CIO cringes.

"Let's hold the next global meeting via our Intranet."

That means voice, data, even video.

(On 2,300 desktops in 90 days.)

Can you do the impossible again?

Can your network?



More connected.[™]

3Com builds networks powerful enough to handle even the most daunting request. Intelligent networks that close the gap between time and distance. So that bandwidth-demanding applications—such as remote training and video-to-the-desktop—run smoothly. All from the company that's connected more businesses in more ways than any other. Visit www.3com.com/moreconnected for the latest news about converged networks.



"We're fundamentally journalists here, and the pillars of journalism are fairness, accuracy and balance. And getting good stories too. I really like the idea that our readers are entertained as well as informed. I don't want my columns to be predictable or painful to wade through. I try to offer fresh anecdotes, good writing, new ways of looking at things. What do I want to send you away with? A little information, a new perspective, a smile. I don't want to be a know-it-all, because I'm not. Well maybe just enough to be dangerous."

Natural Born Reporter

Maryfran Johnson, Executive Editor

COMPUTERWORLD
The World's Technology Newspaper

Read Maryfran Johnson in Computerworld. To subscribe, call us at 1-800-343-6474, visit www.computerworld.com, or return the postage-paid subscription card bound into this issue.

Data Warehousing

Special Section: Data Mining • Decision Support • Strategies

Briefs

Improved queries

Cognos, Inc. has announced Version 5.0 of its Impromptu query- and report-authoring product. It was designed to help users construct queries from their data warehouses. It includes a World Wide Web-based tool for navigating data. Impromptu runs on Windows 95, 98 and NT 4.0 systems. The user version costs \$695; the administrator version costs \$895.

Microsoft metadata

Brio Technology, Inc. has added Microsoft SQL Server metadata support to Informatica Corp.'s Metadata Exchange bridge software. The bridge connects Brio's Enterprise querying tools via SQL Server to the metadata in Informatica's PowerMart data warehouse suite. The bridge is free to Informatica and Brio customers.

Simplified data mining

SAS Institute, Inc. has announced data mining software to access data warehouses. SAS/Enterprise Reporter uses the Microsoft Corp. Office interface. The reporting tool was designed for nonprogrammers who access data through templates. The software starts at \$14,950 for 50 users. SAS/Enterprise Reporter works with SAS-compatible data warehouses.

BUILDING BLOCKS

Percentage of data warehousing users who will need specific analysis and access tools:

Tool	% of users
Desktop online analytical processing (OLAP)	70% to 80%

High-end relational OLAP	10%
--------------------------	-----

Multidimensional OLAP	5% to 10%
-----------------------	-----------

Data mining	5%
-------------	----

Data visualization	5%
--------------------	----

Note: Many users need more than one tool, so numbers don't total 100%.

Source: Independent consultant Pieter Mimmo, Marblehead, Mass.

Metadata standards to aid warehousing

By Linda Wilson

MOHAMMAD RIFAEI, for one, is eager for a metadata standard. "Our warehouse architecture is so complex that we consider metadata to be the glue to hold it together," said Rifaei, manager of the data management group at the Royal Bank of Canada in Toronto.

Metadata is a set of facts about data and other elements in the warehouse, such as where the data came from, what happened to it on the way to the warehouse and what business definitions or formulas apply to it.

But without an integrated, consistent set of metadata,

users aren't likely to be confident using the warehouse's data for mission-critical analysis.

Because there is no metadata standard, the bank had to hand-code interfaces among various databases, tools and an integrated repository created with Repository/Open Enterprise Edition from Platinum Technology, Inc. "It costs a lot of money and effort to make the interfaces work," Rifaei said.

Most users don't even make the effort. But more corporate organizations are waking up to the need for integrated metadata as they move from single-subject data marts to full-fledged warehouses. "When companies built their first

STANDARDIZED METADATA

WOLF KUTNAHORSKY/KLIK

"Our warehouse architecture is so complex that we consider metadata to be the glue to hold it together."
— Mohammad Rifaei,
Royal Bank of
Canada in Toronto

single-subject area, they could kind of ignore metadata and get the warehouse built," explained Mike Schroek, partner in charge of Price Waterhouse LLP's global data warehousing practice.

Not anymore. And the movement to large warehouses will probably put more pressure on

vendors to coalesce around a standard.

Standards are on the way for metadata in the form of competing solutions promoted by Microsoft Corp. and Oracle Corp. — both of which should overtake a fledgling standard developed by the Metadata

Metadata, page 72

COMMENTARY

The art of data design

SHAKU ATRE

This is the second in a series on how to build a data warehouse.

MAKING SURE your data warehouse contains consolidated, nonredundant data is part of its design. So good data design is key to a successful implementation.

Most database gurus acknowledge that there's as much art as science involved in designing a good relational database. Granted, it's relatively easy to determine if a design is in one of the infamous "normal forms" used to indicate how good the design is. (These are eclectically abbreviated 1NF for first normal form, 2NF and so on, with 1NF being not very good and 5NF being very good.) But there's no mathematical formula for coming up



with the original design. That's where the art comes in.

So where do you start? With the data? With the business model? Does it matter?

Yes, it matters. For all but the most trivial data marts — ones with a single data source — you should approach the design in top-down fashion, starting with the business model.

I'm not talking about the kind of detailed business model MBA candidates prepare. Nor am I talking about the kind used in business process re-engineering that can involve months of soul-searching.

I'm talking about a partial business model that focuses on those aspects of the business functions, processes and activities that are relevant to the

Data design, page 72

By Thomas Hoffman

DECISION-SUPPORT TOOLS are supposed to help companies do great things like identify new sales opportunities with existing customers.

But what has proved more difficult has been developing systems that let companies act on those opportunities and measure the returns on those technology investments.

Return on investment (ROI) can be difficult to measure in data mining unless companies have "a tangible means of measuring the improvements expected," said Dave Imhoff, general manager at Intelligent Solutions, Inc., a Boulder, Colo.-based consultancy.

KeyBank — the nation's 13th

largest bank and a subsidiary of KeyCorp — believes it has found an answer to both problems. Fourteen months ago, KeyBank's direct marketing group began to use a database marketing and campaign management tool from Boston-based Exchange Applications, Inc. called the Valex Marketing Automation System.

The system has helped KeyBank move from about seven big cross-selling campaigns each year to 45 more narrowly focused marketing efforts. That has helped the bank increase its customer contacts by 200% annually.

And the incremental revenue generated from the products sold through those campaigns

Using a database marketing tool has helped KeyBank increase customer contacts by 200%.

Tool, page 72

Tool boosts cross-selling

CONTINUED FROM PAGE 71

was enough to pay for the \$1 million project within those 14 months, said Jonathan Hill, the bank's vice president of direct marketing.

"When we looked at the one-year [ROI] period," Hill said, "the numbers looked real good."

Roughly 75% of the bank's marketing campaigns now meet its internal cost-justification thresholds, vs. 50% before KeyBank began to use Valex.

A CD WITH THAT ORDER?

The software sits atop KeyBank's IBM DB2 data warehouse, analyzes customer purchasing data and recommends what products (CDs or mutual

"We can take a view of a customer's entire relationship with us [to aid cross-selling]."

- Jonathan Hill, KeyBank

funds) KeyBank should try cross-selling to small subsets of its 9 million customers.

It also helps identify whether the bank would have greater success in selling those products by contacting certain customers by direct mail or over the Internet.

In the past, KeyBank's data warehouse made it possible for

the bank's marketing managers to identify its most profitable customers. But it was "very painful" to act on that information, Hill said.

That's because KeyBank's marketers would have to analyze recent transaction patterns conducted by its customers, hand that information to KeyBank's IT group and have it create a set of customer profiles.

Then the marketing group would have to "do a heckuva lot of work" manually to create control groups from the 3.5 million households KeyBank serves, Hill said.

That process used to take four to six weeks to complete. It now can be done in one or two business days, he said.

One of the linchpins behind

KeyBank's success — as with any other successful data warehousing initiative — is the use of customer transaction data from different business units that has been dumped into the DB2 warehouse, scrubbed and reformatted for analysis.

"We can take a view of a customer's entire relationship with us," which aids cross-selling, Hill said.

At many banks, business units "are jealously defending their data and not sharing it," said Octavio Marenzi, research director at Meridien Research, Inc., a financial services consultancy in Newton, Mass.

According to analysts, departmental selfishness often makes it hard for many banks to cross-sell products to their customers. □

Key Tower in Cleveland, KeyBank headquarters



Atre: Data design

CONTINUED FROM PAGE 71

warehouse's mission.

For example, if sales and the sales team's desire for increased profit drives the demand for a data warehouse, then focus on the sales, marketing and distribution functions and processes. But if human resources or customer service sponsors the project, the model will be different.

If ideas such as business functions, processes and activities are too abstract, try thinking about the entities — or things — that users want information about. It's my experience that most organizations come up with a list of 30 to 50 entities — such as customer,

customer contact, product, supplier and sale — during the business modeling stage. It may help to construct simple, high-level diagrams that illustrate basic data flows.

DATA ARCHITECTURE

Once you've understood the business drivers that fuel the data warehouse project and constructed a basic business model of the underlying components of the business, you're ready to develop the data architecture. Although "data architecture" sounds very grand and abstract, it's not — it's simply a design flexible enough to contain answers to questions users will ask.

Several weeks ago, I described the importance of understanding user needs, particularly about how much detail the users want [CW, June 1]. It's at this point in the design phase that you collect, analyze and use that information.

As you talk to users, phrases will emerge to guide you in selecting the proper dimensions. You may hear terms such as "profitability by customer" or "sales by product" or "inventory turnover by store."

Those "by" phrases often translate into dimensional tables in a star schema, a popular architecture for data warehouses. A star schema consists of a basic fact table surrounded by dimensional tables that represent the different ways that

which the data can be viewed and analyzed.

The big difference between data warehouses and relational databases is that warehouses contain a lot more redundant data, and you may even build data warehouses that contain several fact tables for a given subject area — each with a different aggregation level of data.

When people talk about data warehouses containing "denormalized" data, they're referring

to that redundancy. Data warehouses essentially pre-aggregate data that would otherwise require a time-consuming multitable join to calculate — something that would bog down users' queries.

In the real world, users may not know exactly what they want. Or they may tell you they need "all" the data. That's where the combination of art, science and experience comes in. Don't expect your first iteration of the design to be perfect. Part of the art of data warehouse design is to recognize when it's time to go back to the drawing board. □

Atre is president of Atre Associates, Inc., a consulting firm in New York that specializes in data warehouse/data mart and database technologies. Her E-mail address is shaku@atre.com and her DataWareMart methodology can be found at www.atre.com.

Metadata standards to aid data warehousing

CONTINUED FROM PAGE 71

Coalition vendor consortium.

Microsoft last year published metadata extensions to its object-based Microsoft Repository for SQL data schema, data transformations and online analytic processing. The repository also has an engine, which runs on Microsoft's SQL Server or Access Jet database and interprets data models and Component Object Model interfaces.

Although the repository now is limited to Microsoft technologies, the software maker has plans to change that. Platinum has an exclusive agreement to develop versions for other databases and non-NT operating systems.

Rumors abound that Oracle is developing an object-oriented repository of its own to store and manage metadata. The company is tight-lipped. "We will have something out in the next few months that will

match or go beyond what Microsoft has done," a company spokesman said.

Rifaie is so committed to the idea of a metadata standard that Royal Bank joined the Metadata Coalition, which was launched in 1995. But he said he has been unhappy with the consortium's progress.

"The Metadata Coalition is moving like a turtle on its back," Rifaie said.

The Metadata Coalition published a text-file-based standard last year. So far, seven of its members comply with the standard and seven more have said they plan to comply, said Katherine Hammer, the coalition's co-chairman and president of Evolutionary Technologies International, Inc. in Austin, Texas.

In response to the Microsoft announcement, the coalition built a free translator between its standard and Microsoft's. □

But some observers question the need for the coalition standard or the translator. "Why would someone write to a facility like a passive file interchange when you have an API [such as Microsoft's]?" asked Kevin Strange, research director at Gartner Group, Inc., a consultancy in Stamford, Conn.

Apparently, a lot of vendors have reached the same conclusion: More than 200 developers attended a Microsoft-sponsored workshop April 22.

Microsoft plans to bundle Version 2.0 of its repository with SQL Server 7.0 and Visual Studio 6.0, both of which should ship later this year. Since March 1997, 700,000 copies of the Microsoft Repository Version 1.0 have shipped with Visual Studio, said Steve Murchie, Microsoft's data warehousing product manager. □

Wilson is a freelance writer in Chicago.

GLOBAL INNOVATORS SERIES

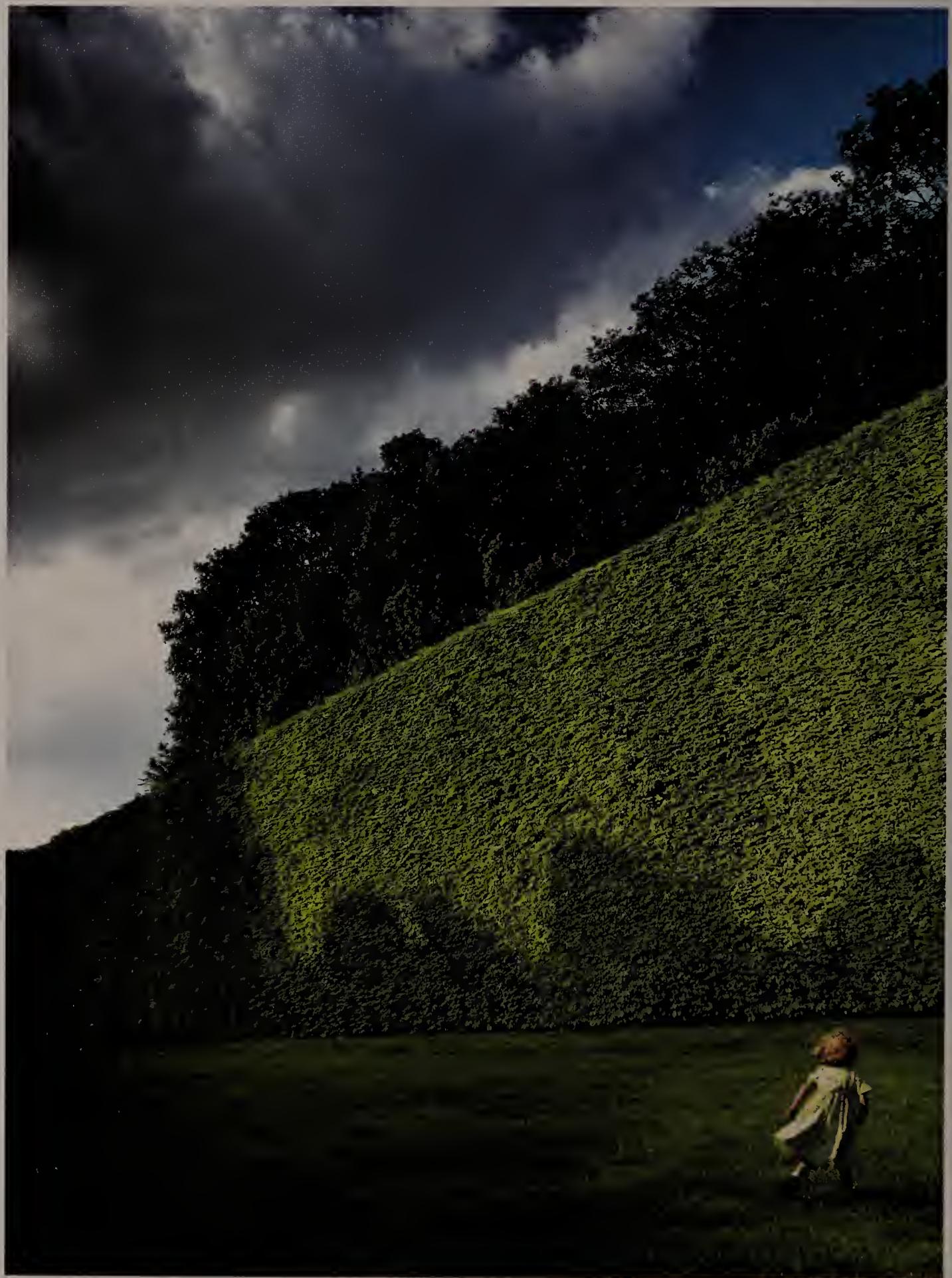
COMPUTERWORLD

June 29, 1998

The Euro

It's A RACE Against
TIME To Solve The
Ultimate MILLENNIUM
Challenge





JUST HOW THICK IS A VIRTUAL WALL?

You're getting ready to close your biggest deal to date via the Internet and the question of security crosses your mind (relax, it can be safe).

As you hit "send," consider the fact that there are entire corporations who are struggling with the same question. They'd like to utilize the Web to distribute and manage sensitive data, but they also want to know – how safe is it?

IBM, working with business partner Lante, a specialist in Lotus[®] application development, helped a company called IntraLinks create a secure environment for businesses to work on the Web.

Supported by IBM Global Services, IntraLinks provides a private extranet based on Lotus Domino,[™] which allows constituents to safely work, collaborate, even negotiate online. Proposals, documents, classified plans and contracts (some worth billions) can travel safely.

In addition, fanatical electronic tracking helps assure that each detail, no matter how small, doesn't fall through the cracks (so not only are the walls as thick as they need to be, but the virtual floor is well-built, too).

In less than a year, over \$60 billion has been managed using IntraLinks' e-business technology. Costs are down 10 to 30% over standard management practices and document delivery systems. This last point has not gone unnoticed in the world of finance, where an increase in volume of as little as 1% can equal a \$20 million boost in revenue.

To learn more, visit our Web site (where the door is unlocked, and everybody's welcome) at www.ibm.com/e-business, or call us at 1 877 IBM EBIZ (3249), ext. NC41.

Solutions for a small planet[™] 

Money Matters

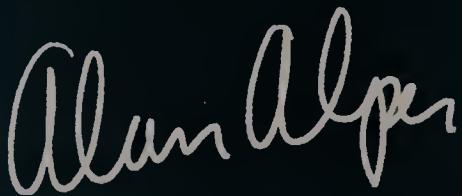
The euro is coming, the euro is coming! This installment of the Global Innovators Series probes preparations being made around the globe for this long-awaited unified European currency, which begins its 11-country, three-step phase-in on Jan. 1, 1999.

Having hopefully made progress scrubbing their systems clear of potentially debilitating Year 2000 bugs, many multi-nationals around the world and Main Street merchants throughout Europe are now turning their attention to euro compliance. Some are taking a proactive approach (see case studies, pages 13, 15 and 16), but the majority appear to be caught in severe "analysis paralysis," as one observer notes.

Everyone will need to snap to, and fast. The cost and complexity of identifying, testing and fixing operational systems is enormous (see cover story, page 8). And some gurus believe the technical and business process issues involving euro conversions are much trickier to resolve than those surrounding the Year 2000 (see column, page 17).

For banks, the situation is particularly precarious because financial instruments will be bought and sold in euros starting next January. It should be interesting to see which European financial institutions are still standing on July 1, 2002, the day participating countries' currencies are forever dissolved.

We hope to check back early next year to see how euro conversions are progressing. Feel free to E-mail me at the address below to share your observations and concerns.



ALAN ALPER
alan_alper@cw.com

COMPUTERWORLD GLOBAL INNOVATORS STAFF

Magazines Editor: Alan Alper; **Sr. Project Editor:** Joyce Chutchian-Ferranti; **Designer:** Nancy Kowal; **Managing Editor:** Kimberlee A. Smith; **Research Manager:** Bob Fink; **Managing Editor, IDG News Service:** Elizabeth Heichler; **Contributing Writers:** Martha Bennett, Jeannette Borzo, Marybeth D'Amico, Richard P. Greenfield, Tom Hoffman, Herman Manson; **Chris Staiti;** **Production Coordinator:** Beverly Wolff; **Desktop Publishing Coordinator:** Kim Pennett; **Computerworld Editor:** Paul Gillin; **Cover photo-illustration:** Herrmann/Starke

WORLD

Extranet Takes Data Beyond EDI

ITALIAN MACHINERY
MAKER TURNS TO THE
WEB TO EASE ACCESS
TO COMPANY INFO

BY CHRIS STAIDI

A year ago, the phone lines were busy at Nuovo Pignone. The Florentine maker of turbines, compressors and sundry other pieces of heavy machinery was operating under the old system of just-in-time manufacturing in order to keep up with shipments from its suppliers. "Every week," says Maurizio Ammannato, "Nuovo Pignone had to call the suppliers and ask, 'Hey, are you going to send it?'"

The obvious solution was a system of electronic data interchange (EDI), and there the company had a few advantages. Nuovo Pignone is a subsidiary of General Electric Co. and could hitch a ride on the mother company's worldwide network. Not only is GE's information systems arm, GEIS, well known for its own EDI value-added network and software, which it sells to third parties, but it also conveniently has an office in Milan.

Such a system could have established a link with Nuovo Pignone's 300 biggest suppliers, which account for some 70% to

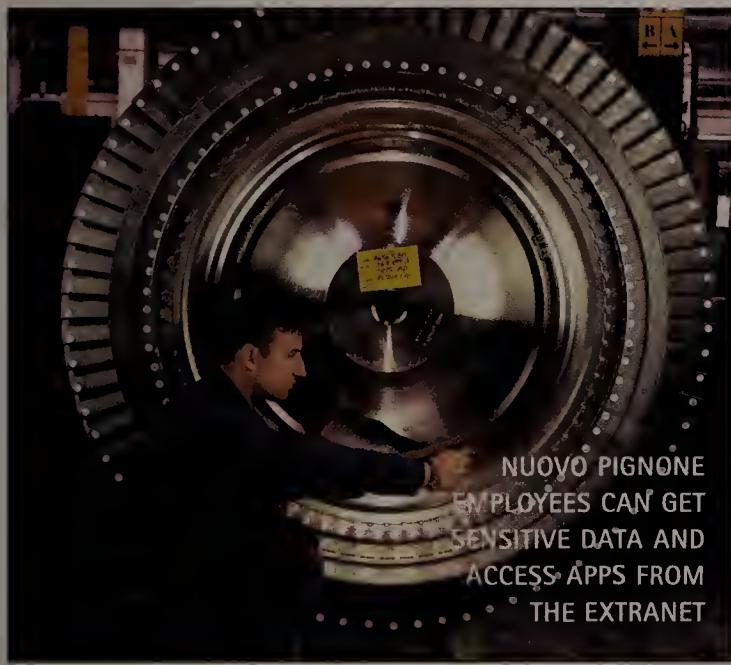
80% of the shipments the company receives, explains Ammannato, sales and marketing director at GEIS.

But under this plan, Nuovo Pignone would run into the same problem that plagues other large manufacturers embarking on EDI projects. The company has about 2,500 suppliers, many of them two-person machine shops scattered all over the globe. In general, the small shops don't have the resources, staff, money or interest to handle standard EDI.

"So you've still got the phone, the fax" and all the aggravation, Ammannato says. A tracking system that doesn't track all of the suppliers is *not* any better than no system at all, he points out. "The best you can hope for [using standard EDI] is about 70%. And that is not enough."

This is why most large-scale EDI projects fail, he says. "After the first phase of connecting the major suppliers, there's a risk that the project will have to be stopped. We needed a different technology that lets us connect to these smaller suppliers."

So Nuovo Pignone turned to the Internet to create a system it calls an extended company concept. "We consider our suppliers, and also our customers, to be an extension of our company," says Internet and electronic-mail manager Giorgio Piazza. "We want them to be



able to access information that they need as easily as possible."

The system is a protected Web site accessed via GEIS's worldwide network through a secure TCP/IP gateway. Customers and suppliers worldwide can access the system with a password to get the data they need. "This way," Piazza says, "we can manage the supply chain both upstream and downstream."

Worldwide employees of Nuovo Pignone can get more sensitive data and access to applications from the extranet. Under the supplier-tracking program, suppliers use a simple browser and the 'net to fill out status forms about their shipments. Those that need help can call GEIS technical support. Big suppliers that prefer to use standard EDI have that option. "I can't ask a small company to install a major EDI package," Ammannato says. "The key is to be as flexible as possible and give people what they want."

All of the resulting forms are

sent to the GEIS network, which overnight translates them into a standard EDI format and sends the results to Nuovo Pignone. The system uses Netscape Communications Corp.'s EasyExpert gateway, which was developed with GEIS, to translate and integrate data from its EDI systems and old legacy equipment.

Such a system should give Nuovo Pignone a competitive advantage for 12 to 15 months, at least among Italian manufacturers, says Antonio Romano, director of the standard research division at IDC in Milan. "Italy does not have a good culture for EDI because of immaturity on the demand side."

The TCP/IP gateway is enabling some of Nuovo Pignone's suppliers to use the Internet as an EDI conduit, allowing people who don't have the resources for a large EDI system to have the same features. "A few years ago, people said the Internet was going to kill EDI," Am-

mannato says. "But instead of killing it, the Internet is actually facilitating EDI."

The trickiest part about using the Internet is security, says Piazza, who along with computer manager Paolo Sestini manages the system's operation. Without external security software, he says, "the Internet is not the most secure place for applications."

HOW SECURE IS IT?

The company's system has both a firewall and extra security software created by developer V-1 in Knoxville, Tenn. Users who are sending payment information can use GEIS's X.509 setup, which asks for passwords and provides encryption. For those browser users with less sensitive needs, the Secure Sockets Layer is usually enough. It takes less time than X.509, as it doesn't require decoding.

The security features will become more useful as Nuovo Pignone expands its system. It plans to offer worldwide employees access to databases and other applications.

Now the phone lines are not so busy in Florence. The system has cut the supplier-tracking process from one week to one day. "The final objective is putting away the last fax and phone procedure. It's then that you get the full benefit of a computer system," Ammannato says.

STAITI, A FREELANCE WRITER AND CORRESPONDENT FOR ASSOCIATED PRESS/DOW JONES, LIVES IN ROME.

INSIDE THIS ISSUE

6 world view: south africa

**THERE'S A WILL, BUT
IS THERE A WAY?**
by herman manson

8 cover story

THE EURO: THE REAL MILLENNIAL CHALLENGE

Beyond the thorny and expensive Cobol conversion lie cultural, political and liability concerns

by richard p. greenfield



**case study: toys r us
NOT QUITE CHILD'S PLAY**
by thomas hoffman

**case study:
france printemps
SET TO SPRING
INTO ACTION**
by jeannette borzo

**case
study:
uzin utz
STICKIN'
TO PLAN**
by
marybeth
d'amico



17 perspective DEMYSTIFYING THE EURO

It's not just an IT problem
by martha bennett

There's a Will, But Is There a Way?

E-COMMERCE
PIONEERS FACE
GLOBAL CHALLENGES
AND INFRASTRUCTURE
SHORTCOMINGS

BY HERMAN MANSON

South Africa is a country of contrasts. "A world in one country," as local tour operators love to call it. First and third worlds collide as people struggle to not only come to terms with a turbulent past but also mold and embrace their future. Indications are that future will be heavily influenced by the knowledge economy, a term associated with electronic commerce, information and the global Internet.

Even though both business and government acknowledge the importance of the Internet and electronic commerce for economic and social upliftment, the country faces many difficulties in translating this vision into reality. Finding people with electronic data interchange/electronic commerce skills is difficult because foreign business is luring away talent with better salaries and working/living conditions. And the country's telecom infrastructure is insufficient and too expensive to support electronic commerce.

For instance, Internet users in South Africa pay per minute for the time they spend online (because the government monop-

oly charges for local calls, most ISPs charge a flat monthly rate). South Africa Internet service providers (ISP), moreover, pay for Internet connectivity via backbones based in the U.S., translating into higher baseline customer charges.

As in the rest of the industrialized world, electronic commerce among businesses is leading the way. The business/consumer market hasn't achieved critical mass yet because the audience for viable commerce initiatives simply doesn't exist. For example, phone penetration stands at about 10%, or 4 million telephone lines among 40 million people. Conservative es-

timates put the dial-up user base at 154,276, corporate usage at 200,000 and student use at 100,000.

The general lack of 'net access has forced electronic retailers to focus on the top end of the market, to which they sell luxury items such as cigars and wine. But few companies have been willing to back commerce initiatives with hard cash. "Most of the immediate areas being considered are simply redeployments of existing business applications using Internet technology," says Andras Salamon, services director at Internet Solution, one of South Africa's biggest Internet systems integrators.

Salamon argues that mainstream corporations are likely to continue using value-added networks for EDI for some time to come because many large South

Africa companies have numerous direct wide-area network connections with business partners. But some are routing these connections through the shared public Internet or by building Internet-based virtual private networks (VPN), Salamon says.

And then there are geopolitical concerns. Charley Lewis, deputy chairperson of the National Information Technology Forum and head of South Africa's largest labor union's information technology unit, argues that an information economy that relegates South Africa to be a mere consumer of products and services designed, developed and profitable elsewhere is simply going to increase existing global inequalities. "And is going to do little for our economy and less for our balance of trade," he argues.

Lewis says he does not want to wake up in an information society that has "made by the WTO" (World Trade Organization) stamped in one corner and "copyright Al Gore" stamped in the other.

Moreover, Lewis opposes a technology-led vision of a wired future. "I am sure business will respond that its business is to make profits, period. This requires us to be globally competitive, period. From these two universal goods all other good things will flow."

RACE FOR THE FUTURE
During the past couple of years there has been much talk about emerging economies leapfrogging developed ones, thanks to IT. Salamon says he believes that the shift from an industrial to an information economy will be bad news for much of Southern Africa in the short term,



mostly due to a government monopoly that controls a patchy telecom infrastructure.

Ian Gordon-Cumming, general manager of British Telecom Southern Africa, says he believes that cultural and regulatory obstacles don't exist in South Africa and that the problem lies in expanding the telecommunications network to all areas of the country. He argues that access to merchant services such as Amazon.com and manufacturers' technical data may overcome the tyranny of distance — a major problem for underdeveloped rural areas.

South Africa's telecommunications infrastructure is controlled and operated by Telkom SA Ltd., a partially privatized monopoly. In a bid to satisfy business and consumer demand for communications infrastructure, Telkom has embarked on a comprehensive rebuilding program called Vision 2000. This five-year network expansion and modernization plan will dramatically boost telecommunications access via a fully digital, world-class network. Through Vision 2000, Telkom aims to add up to 3 million lines to the network (a 75% increase), while replacing another 1 million existing lines. Switching gear is being digitalized, and interchanges are being rewired with fiber optics. Wireless local loop will service rural areas.

Craig Venator, executive consultant of EDS South Africa, says external pressures such as increased competition, customer demands, collapsing and tightening value chains and pressure to compete globally are

driving the development of electronic commerce strategies.

Venator says that although some South African companies have developed business and technical strategies for electronic commerce, including the Internet, others still seem to think electronic commerce is simply an evolution from teletext of a decade ago. They also seem to believe EDI is most of what the recent electronic commerce hype is all about. Companies have yet to make the crucial connection that electronic commerce is a means to enable business process improvement.

FURTHER READING ON THE WEB:

- African Resource Network
www.afresnet.cam
- Aquila Systems
www.aquila.co.za/matman.htm
- Computerworld emmerce
www.computerworld.com/emmerce
- EDS South Africa
www.za.eds.cam
- Internet Solution
www.is.ca.za
- NITF
www.wn.apc.org/nitf/
- Telkom's Vision 2000
www.telkom.ca.za/vision_2000.htm

The benefits of business process improvement include reductions in administrative cost, staff, inventory, cycle time and time to market with improved cash flow, productivity, market opportunity and customer service. Venator says the challenges are the same as with any project, where well-defined business needs and processes should govern the use of technology rather than the reverse.

"South African companies are beginning to understand that reducing 'transport time' is no longer an adequate response to

their customers' demands," Venator says. "The perceived value is also shifting from faster transactions to better information. This is leading to more cooperative efforts between companies for shared investment and mutual benefits."

Four companies, including a retailer, two financial institutions and a technology company, recently joined forces to create South Africa's first VPN. Its aim is to ensure more cost-effective operation of the individual corporate networks while paving a way to sophisticated electronic retail and financial services markets.

The companies share their core network infrastructure, management and technical support teams. Richard Laubscher, CEO of Nedcor, a major investment banker and one of the four companies on the VPN, says his organization's specific objectives are to gain operational leverage through network economics; to develop electronic commerce for payment and settlement; and to use loyalty programs to lower the cost of acquiring and retaining customers.

Still, increased collaboration between business and government will be essential to South Africa's future, given how much infrastructure needs to be built to create an information economy. The need for future economic growth and social development based on an information economy does not rely simply on technology but on the ability of different parties to bridge their differences and embrace a future.

MANSON IS A FREELANCE WRITER IN CAPE TOWN.

NOTES FROM AROUND THE GLOBE

EUROPEAN INTERNET COMMERCE ON THE RISE

■ A recent study predicts rapid growth in European Internet commerce revenues, mainly due to larger transaction sizes per buyer, particularly in the business-to-business sector. Almost 4.3% of Western Europeans are now Web users. The largest markets are in Germany and the UK, with Web populations of more than 4 million each. The Nordic countries take the clear lead in deployment of electronic commerce sites, but Switzerland, the UK, The Netherlands and Germany are all above the Western European average.

TOTAL INTERNET COMMERCE REVENUES IN WESTERN EUROPE

In 1997:	\$1B
In 2001:	\$30B

TOTAL NUMBER OF USERS ACCESSING THE WEB

In 1997:	16.6M
In 2001:	56M

SOURCE: IDC'S INTERNET COMMERCE MARKET MODE

GETTING SMART

■ Ovum predicts that the smart-card market will grow to 2.7 billion shipped units in 2003. Europe is the largest market, while Asia is the fastest-growing, led by mass transit ticketing and mobile telephone applications. The U.S. market has been a slow starter, but it will take off with smart cards securing corporate network and Internet access.

SOURCE: OVUM, INC.

THE EURO: THE REAL CHALLENGE

BEYOND THE
THORNY AND
EXPENSIVE COBOL
CONVERSION
LIE CULTURAL,
POLITICAL AND
LIABILITY
CONCERN

By Richard P. Greenfield

The idea of the euro goes back to World War II — at least to the men and women who came of age during or immediately after the war. And the idea was deceptively simple: Bind Europe together commercially, politically and socially, and it would be impossible for a continentwide conflict to ever happen again.

And following the reunification of Germany and the end of the Warsaw Pact, it looked as if the creation of a single European currency would be the obvious next step. Why not, the theory went? If the Europeans could gloss over deep-seated sociopolitical fissures, what's a few monetary concerns among new-found friends? But as is usually the case when it comes to money, no one wants to lose.

And euro skepticism extends from Main Street to corporate boardrooms. In a recent KPMG Peat Marwick survey on euro

readiness, only 53% — little more than half the respondents — said they plan to adopt the euro as a reporting currency in 1999, and only 39% expect to adopt it as their accounting currency.

"The mode I see in Europe is one of analysis paralysis," says Bill Zeitz, president of New York consultancy Beyond The Millennium Solution and former group chief information officer at American Cyanimid. "The British, who ironically are not even joining in the first round, seem to be furthest ahead in analyzing the problem and coming up with solutions. Everyone else is lagging behind."

That's true for the most part, other euro watchers claim. But the financial services sector, information technology firms and certain segments of retail in those countries included in the euro's initial stage are well into making their systems euro-compliant.

Making Change

It's been a long, strange trip to a common European currency. Here are some key milestones that have been achieved along the way.

476 A.D.

The Roman Empire falls — the last time Europe has a single currency. The currency, backed by the legions of Rome, stretched from Palestine to Britain and throughout Western Europe.



1099-1306

Until their suppression by France's King Phillip IV, Knights Templar were the brokers for all pilgrims traveling between Latin Europe and Palestine. This concept would be revived by both



Renaissance.

1696

The King of England turns to Sir Isaac Newton to revamp how coins are produced and to chase down counterfeiters and coin clippers.



1948

In the middle of the Berlin Airlift, the deutsche mark is introduced as a new currency.

1951

First European agreement on production of coal and steel, a precursor to EU agreements that would soon cover most aspects of agricultural and industrial production.



MILLENNIAL NGE

OF ALL THE companies operating in Europe, 36% have no plans for adapting their information technology systems to the requirements of a single currency.

But even if an organization is euro-compliant by next year, it had better not suffer a catastrophic systems failure. As with Year 2000 projects, few insurers are writing insurance policies, and in Britain there are none because the euro, like the Y2K bug, has been deemed a "foreseeable event."

And forecasting is key. The European Union has created a three-step program

for countries participating in the euro (see timeline below). The initial phase of euro compliance, which kicks in Jan. 1, 1999, mandates that key financial systems be able to calculate in a triangular manner. This means any amount booked for any reason will be logged and processed simultaneously in both the local currency and euros. Many bank systems can already



handle multiple currency calculations, so on one level, the implementation looks deceptively easy.

But easier said than done. Like the Y2K millennium bug, euro conversion is a costly nut to crack. Gartner Group, Inc. estimates the cost at \$150 billion to \$400 billion (IBM ballpark it at \$175 billion).

These estimates are based on the \$1.50 it costs to make each line of Cobol code euro-compliant. But these figures, while massive, mask both the cost and the complexity of euro conversion projects. The key unknown, Zeitz points out, is that many legacy financial applications are written in a variety of undocumented and non-standard languages.

"Outside the U.S., there are many variations of Cobol, and even getting all the Cobol doesn't guarantee that you have covered it all," Zeitz explains.

And a recent study of the Y2K problem indicated that there were 1 trillion lines of code in 500 different languages, Zeitz continues. "Say the euro problem represents just half of that — it is still a monumental task," he exclaims.

And that's not all. It's also a problem of not knowing what the exact rules are. "How will decimal places be handled in lira and Spanish peseta, for instance? It can already take hundreds of these currencies to equal 1 deutsche mark or 1 Dutch guilder. The Economic and Monetary Union (EMU), moreover, requires all calculations to be made to six decimal places, which could create interesting rounding errors.

Please turn to page 12

1952-1970

Major European currencies experience monetary conniptions: The pound sterling is converted to the decimal system; the French franc is revalued several times.

1971

U.S. President Nixon repudiates the Bretton Woods agreements that had tied exchange rates to the gold standard. Currencies are allowed to float freely.



May 1998

The European Council decides the exchange rates among the 11 national currencies (Austria, Belgium, Finland, France, Germany, Ireland, Italy,

Luxembourg, the Netherlands, Portugal and Spain) taking part in the initial round of the EMU.* The European Central Bank is created.



Jan. 1, 1999

The euro goes into effect in the 11 participating countries, though transactions will be possible in euro and the national currency via triangulation. But financial transactions and new public bond offerings are in euros.

Jan. 1, 2002

Euro notes and coins are gradually phased in to replace notes and coins in national currencies.



July 1, 2002

Complete phasing out of all national notes and coins in the participating countries.

*The UK, Denmark and Sweden are not joining the initial round. The UK will probably hold a referendum in 2001-2002 to decide whether to join the EMU.



IS THERE MORE TO JAVA THAN COFFEE JOKES?

Two years ago, the introduction of Java™ software created a whirlwind of excitement and an explosion of coffee-oriented puns. Was it all hype?

At IBM, we think Java is worthy of the stir it created. An idea that brings two benefits to businesses wishing to become e-businesses: one is faster application

development, the other is the promise of standards and open connectivity.

Perhaps the most profound change that the Web has brought to the IT world is a culture of standards. It's this capability that permits universal connectivity and has allowed 80-million-plus people to access the Web. Java is the first language that allows a single application to run on any platform (write once, run anywhere™).

This can speed the application development process – since you don't have to create a different version of your software for every client, every server and every browser. And since most business environments contain a wide variety of computing platforms, Java is just common sense. So is the idea of 100% Pure Java™ – a Java that is not corrupted by offshoots and OS dependencies. (We support Sun™ on this issue.)

Is Java perfect? No. Not yet. Like any new technology, it needs refinement. But it's maturing faster than any other language in history and IBM is working to make it real. Currently, we have more people working on Java than any other company – creating real-world applications in finance, manufacturing and distribution (to name a few). And we're putting Java to work to solve real business problems.

We're also creating award-winning tools like VisualAge® software and Lotus Bean Machine™. These are powerful, flexible programming tools that make it easier for all kinds of companies to build customized solutions (everything from interactive customer service Web sites to collaborative intranets).

To learn more about how IBM and Java can help your business become an e-business (and enjoy one or two fresh coffee puns), we invite you to check out our Web site at www.ibm.com/java or call us at 1 800 IBM 7080, ext. NC39.



Solutions for a small planet™

Continued from page 9

There are generally two ways the conversion can be handled at the systems level: One is to revamp the application so it simply starts recording transactions in euros. The second involves holding funds in two separate denominations that are entered at the same time a transaction is entered into the system. But either way has to be checked and rechecked before it can be put to use in any real-world working scenario.

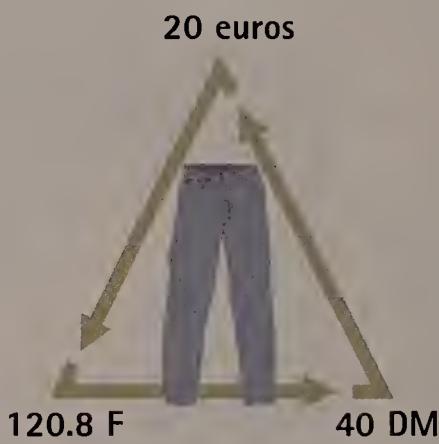
From both a systems and a euro compliance viewpoint, both are valid. The difficulty has been to come up with software that can automatically deal with both currency data and display fields, as well as perform audits to ensure that the calculations are being performed systemwide per a new instruction set.

BENEFITS SEEM OUTWEIGHED

But even once the conversion is done, the touted benefits of a single currency, such as being able to travel without changing money and paying commissions each time to banks, are viewed with skepticism around the continent. Each and every cash register, automated teller machine and vending machine will have to be reconfigured for euro bills and coins. That process is expected to be so cumbersome, the EMU has endorsed having prices for all goods and

GOING FULL TRIANGLE

For multicurrency transactions between Jan. 1, 1999, and July 1, 2002, businesses will have to triangulate conversion rates. For instance, a French tourist in Germany who wants to buy a pair of pants priced at 40 DM will see how the POS converted the price to euros and then to francs.



That kind of cynical uncertainty is mirrored in the patchwork quilt that companies have made to prepare for the euro. LVMH, a large French luxury goods company whose holdings include Louis Vuitton, Moet-Chandon champagne and Hennessy brandy, is unwilling to publicly disclose its euro conversion plans — not surprising, as LVMH's competitive advantage is at stake. Its products are routinely sold in

the continent (see case studies, starting on next page). Small restaurants and bistros in Germany already give receipts denominated in the local currency and euros.

Ian Taylor, currently a member of Parliament in the House of Commons and former head of the Exchequer in John Major's regime, sees the euro as inevitable but fraught with economic and political uncertainties.

Taylor cites Imperial Chemical Industries, for example, a UK company that sells paints, among other products. The company has made extensive preparations for the euro. "What euro means for a company like ICI, all over the EU, is complete and utter price transparency," he says. "And if someone sees that gray paint is selling cheaper in Portugal than in France, then they may quite justifiably start ordering all their gray paint in Portugal as well."

In the past, companies were able to conceal some of these price differentials behind currency differentials or even package-size differentials within markets, but under the euro they cannot. "No gray market in gray paint, to put it differently," Taylor explains.

The increasing number of European companies going online and engaging in electronic commerce means that price transparency will not be limited to the physical world. It will be extended and reinforced by the growth of online commerce.

ON THE MONEY

Taylor, like Zeitz, says he sees the UK as leading the euro compliance charge. He cites the preparations being made in London, where, because Britain is not joining in the first round of the EMU, the euro can be treated as simply another foreign currency. And there is another reason why the British are perhaps running ahead of the EMU: All of the debt of the various EMU countries, including states, municipalities and special projects, is going to have to be redenominated in euros. This involves the equivalent of billions of dollars, and most of those new, redenominated bonds will be sold via London, the largest financial center in Europe. IT represents an enormous windfall for the financial houses in London and is the source of much resentment on the conti-



A SURVEY OF corporations on euro readiness by KPMG found that only 53% of respondents plan to adopt the euro as a reporting currency in 1999.

services listed in both the local currency and euros starting Jan. 1, 1999.

And even that may not be enough. A recent KPMG study showed that all over the EMU, 11% of respondents said the single most important action their governments could take would be to educate the populace about the euro and increase public confidence in the EMU (that 11% figure rose to 18% in Germany in the same survey).

duty-free stores around the globe, so it already has practical experience dealing with dozens of different currencies.

Yet no one is standing to collect accolades. "We are a bit ahead of the game," said Jean-Francois Martin, IT director at Louis Vuitton in Paris. However, he declined further comment about his company's plans for accommodating the euro.

It's not quite that close-mouthed all over

CASE STUDY: TOYS R US NOT QUITE CHILD'S PLAY

TOY RETAILER LEVERAGES
YEAR 2000 RESOURCES TO
TACKLE EURO CONVERSION

BY THOMAS HOFFMAN

Technical and business process changes are the least of Joseph Giamelli's worries when it comes to retrofitting the financial systems Toys R Us uses to recognize the forthcoming European currency, the euro.

Indeed, the Paramus, N.J.-based retailer's financial applications can already process myriad currencies in the 27 countries where it does business.

"We deal in multiple currencies around the world, so it's not a new thing for us," said the vice president and chief information officer for the international division.

Still, Giamelli admits that the toy store faces a raft of obstacles in addressing the euro, from educating cashiers to fending off competitors that are expected to begin advertising products in the new denomination, though euro coins and notes won't be introduced until Jan. 1, 2002.

But mostly it's the lack of "clear definitions" concerning standards and requirements from members of the European Union that leave him uncertain.

"You hear a lot of rumors going around" as to the specific regulations that will materialize from the EU regarding regulatory requirements, Giamelli says. Even though

the EU approved final plans last month for the introduction of a unified European currency set to begin Jan. 1, 1999, "it's not an announcement that will be static. [The rules] will change over time," he says.

Take Italy, for example, where \$1 equals 1,500 lira. Next January, when an Italian walks into a Toys R Us store to spend 1,500 lira on a bottle of children's soap bubbles, the purchase will cost 1.2 euros. That will present a challenge for Italian regulators be-

JOSEPH GIAMELLI: ONE BIG CHALLENGE FOR TOYS R US WILL BE 'GETTING CLEAR DEFINITIONS OF WHAT WILL OCCUR'



cause "they're not used to decimal-point transactions," Giamelli says.

Not that juggling the conversion of the retailer's IBM AS/400 Cobol-based merchandising, pricing and other systems on top of its massive Year 2000 project is child's play for Toys R Us, which generates more than \$3 billion in international sales from its 441 stores outside the U.S.

Indeed, Giamelli hopes to transfer the knowledge of his 25-person Y2K team to

the EMU project when the retailer's millennium conversion work is done in July. "This ensures that we have the resources, and you minimize the learning curve," says Giamelli, who placed the company's euro budget at 25% to 30% of its seven- to eight-figure Y2K conversion costs.

Analysts placed the retailer's euro costs at \$2 million to \$4 million. Besides its Oracle Corp. Financial software and IBM point-of-sale systems, most of the firm's currency-sensitive software was developed in-house. Giamelli says the EMU project team is using packaged tools to repair its IBM AS/400 Cobol-based systems.

All U.S.-based companies like Toys R Us will have to look at the European countries where they do business and respond to the regulatory conditions in each region, says Lou Marcoccio, an analyst at Gartner

Group, Inc. in Westboro, Mass. When retailers have to accept different currencies, "they can't just decide on an ad hoc strategy without understanding the issues in each country," Marcoccio warns.

Next January, Toys R Us will accept credit cards and checks for purchases, though the euro won't go into circulation until 2002.

Another area of uncertainty for Toys R Us is whether to begin pricing Beanie Babies in euros next year. Some French competitors, for example, have begun advertising product prices in both francs and euros, Giamelli says. It's not a regulatory issue, he adds,

"but a competitive issue."

So while Giamelli believes Toys R Us' euro conversion "isn't major surgery," he admits the initial shock to employees and customers will be difficult to prepare for. On the heels of Y2K, the euro conversion, he says, "couldn't come at a worse time."

HOFFMAN IS A COMPUTERWORLD SENIOR NEWS EDITOR.

Continued from page 12

ment, where the first-round EMU members see the British taking profits on what they are creating and risking.

But not all is rosy even in the UK. Gerd Kruse, vice president and director of Y2K and euro project group, cites two distinct problems with the euro, and only one of them is IT-related. "We are finding that the private sector is much more advanced at this. It is the public sector that is lagging." A lagging public sector in Europe,

panies. "American companies, with the exceptions of some of the banks, are being much too complacent about this, and that could come back to hurt them if the implementation of euro goes well."

Sarwar Kashmeri, president of Niche Systems, a New York-based software consultancy, is also concerned that U.S. companies that have spent large sums on Y2K fixes will simply be reluctant to put money into something that could be delayed for any number of reasons.

A RECENT SURVEY by the European Information Technology Observatory found that 55% of companies managed their own euro projects; 30% worked on euro projects with their suppliers; and only 4% hired contractors. The other 11% involved suppliers in their projects.

where almost all government institutions are more involved with their citizens' lives, is a very large potential problem, particularly spread across 11 countries, he says.

Kruse's assertion is supported by a survey released by DIHT, the German National Association of Chambers of Commerce. In a survey of more than 1,150 municipalities, DIHT found that 61% had not even begun to plan for the euro's arrival, and although most of the laggards were small towns, their numbers make them a formidable problem. Even more confounding: DIHT found that 90% of local governments have yet to make a decision on using the euro in the three-year transition period.

The UK's Taylor is also concerned about the response, or lack of, from U.S. com-

But some American companies are tackling the euro problem head-on (see Toys R Us case study, page 13). Those organizations ahead of the game are probably using automated tools, Zeitz said. Tools such as Reasoning from Reasoning, Inc. in Mountain View, Calif., and Millennium 400 from Visionet Systems, Inc. in Princeton, N.J., which his company uses, actively search for the lines of code in a program that need to be changed. They then audit the changes and ensure the application is fully euro-compliant.

For many corporations, the euro, coming as it does almost head on head with the Y2K problem, represents not simply another round of capital investment in IT infrastructure and consulting but the possibility of large financial liability.

The euro, in this sense, is therefore a more complex problem because like the Y2K bug, it too is a foreseeable event and adds to the mix a new currency that needs to be calculated. Lloyd's of London, however, is not offering insurance against euro catastrophes. "We do not insure for financial guarantee against a monetary loss," notes Andrea Hurst, a spokeswoman for Lloyd's of London.

GERMANY UNPERSUADED

And if these systems melt down, imagine the response of an already reticent European populace. In Germany, with the largest of the euro economies and the strongest currency, skepticism has shown up everywhere. A recent poll conducted by the German magazine *Spiegel* found that only 7% thought the euro would be good for them, while 41% thought it would be bad for them, and 37% said it would not change anything for them.

But the euro may be one of the few instances where the IT community has begun work on a project that has enormous social, political and economic ramifications for tens of millions of people and where the community is divorced from those man-on-the-street sentiments, Zeitz says.

And like it or not, someone has to lead the way. That's always been the case with currency conversions. When Roman currency was the coin of the realm in Europe, for instance, it was backed by the Roman legions, who ensured its use.

This time around, the only legions involved are IT professionals, who are scrambling against a very tight deadline to try to do something that has never before been done by simple treaty and without force of arms or other coercion. Its success or failure will touch almost every aspect of IT business and reach well beyond.

GREENFIELD IS A FREELANCE WRITER AND CONSULTANT IN STATEN ISLAND, N.Y.



CASE STUDY: FRANCE PRINTEMPS SET TO SPRING INTO ACTION

AS FRANCE PRINTEMPS
PREPARES FOR THE BIG
CONVERSION, THE NO. 1
PRIORITY IS THE CUSTOMER
BY JEANETTE BORZO

While the global economy searches for what the euro means for the value of the yen, whether it will lead to short-term volatility in foreign exchange markets or push up U.S. interest rates, the euro project manager at one of Paris' best-known department stores simply wants to make sure the transition to Europe's common currency won't bother his customers.

"We must not disturb our clients," said Benoît Wiscart, euro project manager and organizational manager at Printemps. "This isn't about IT; it's about marketing."

Paris-based France Printemps is part of the Pinault-Printemps-Redoute conglomerate that includes the FNAC music stores and the Conforama chain of furniture stores. Founded in 1865, Printemps has 17 department stores throughout France and generated about 5 billion francs in sales last year (\$832 million). Printemps began preparing for the euro last year with the help of French consulting firm Altis. Preparation has involved several Printemps departments, including information services, pricing and customer relations. With a project so vast, Printemps has prioritized its euro to-do list. "The best idea is to put everything in order, depending on its priority," Wiscart says.

Printemps has more than 6,000 computer programs in use at the company, Wiscart says, but all of its programming is outsourced to facilities companies and consulting firms. Between its own infor-

mation technology staff and that of its outsourcing partners, Printemps has the equivalent of three full-time employees dedicated to the euro project. Together, its internal and external staff will tackle the challenge of modifying some 300,000 lines of code, written mostly in Cobol, C and Visual Basic, and writing some 12,000 new lines of code. The company expects to spend 1% to 1.5% of its annual sales revenue preparing for the euro.

With input from its employees, Printemps determined which programs to update. An applet will be added to the necessary programs to convert the currency when needed. Much of this work is being done with Printemps' point-of-sale systems.

"The point-of-sale system will be modified by adding a reference currency," Wiscart explains. "After this modification, all payment in one or the other currency will be accepted and then will be converted into the reference currency if necessary."

"For example, if the reference currency is the euro and the client is paying with francs, the total will be translated into francs for reference, but the change will be given back to the client in euros," Wiscart continues. "The reference currency will at first be the franc and later the euro."

Starting Jan. 1, 1999, and throughout the transition period, customers will see the two currencies on receipts, regardless of what Printemps uses as its reference currency, Wiscart says. Because Printemps doesn't need to convert prices to a third currency on top of the euro, such as dollars or marks, there is no need for the "triangulation" conversion that is often necessary to convert one European currency to another.

But when it comes to merchandise Prin-

temps buys, the department store will let its trading partners decide which currency they want for payment. "With our suppliers, it's not possible to impose rules about how they will accept payment," Wiscart says. So Printemps can accommodate trade in euros and francs during the transition.

To make sure each step in the Printemps conversion goes well, the department store will test its new and modified programs along the way. "For the testing, we are using the same tools as those employed for the Year 2000 [automated test repeaters], and then we will conduct tests with [employee] users," Wiscart says.

To manage the changeover in areas such

FRANCE PRINTEMPS: READY FOR THE EURO



as ordering and billing, Printemps is letting its enterprise resource planning supplier, Ross Systems, Inc., manage the updating of Ross' Renaissance software to handle the transition. Atlanta-based Ross says it has addressed all of the EMU implications in its Renaissance CS suite of products, including recalculating data and values in euros and rounding issues. Wiscart is expecting Printemps to have everything ready in time, despite the many details involved.

"Our top priority plans are ready," Wiscart says. And for the Parisian institution, the customer is the top priority. "We'll be ready as soon as needed."

BORZO IS THE BUREAU CHIEF FOR THE IDG NEWS SERVICE IN PARIS.

CASE STUDY: UZIN UTZ STICKIN' TO PLAN

FORESIGHT HELPS GLUE
MAKER PREPARE FOR THE
UNIFIED CURRENCY
BY MARYBETH D'AMICO

M"Making glue is like baking a cake. You add a few ingredients and stir them around, but success really depends on a good recipe."

Those are the words of Thomas Müllerschön, assistant to the CEO of Germany's Uzin Utz AG, concluding a journalist's tour of the company's state-of-the-art glue-making facilities. The Ulm-based manufacturer of parquet and tile floor adhesives also thinks it has the recipe for success when it comes to the euro.

Uzin has been steadily preparing for the unified currency with a revamp of its information technology systems during the past two years. The company, which saw sales in 1997 of 160 million DM (\$89.4 million) and has 310 employees, has always managed to stand out a bit from its peers. It took the unusual step last October of going public to raise an additional 27 million DM. The capital will help the company set up its first production facilities outside Germany, most likely in France or Eastern Europe. Uzin has sales offices in France, Poland, England, Austria, Switzerland and Turkey, and the share of its products sold abroad — now about 20% — is increasing 2% to 3% each year.

Müllerschön, who heads the company's euro project team, says Uzin's experience with bills coming and going in a myriad of currencies may have made it more aware of the magnitude of the job it faces.

As for many other companies, Jan. 1, 1999, is the deadline when local currencies will be fixed at

set rates to the euro, and euros will be accepted for money transfers but not cash transactions. "From that day on, it is possible that some of our suppliers could send us a bill in euro," Müllerschön says. Computer programs will have to be in place to do multiple currency transactions.

The bigger issue comes when the euro becomes legal tender on July 1, 2002. In addition to issuing current bills in euros, Uzin will have to retroactively convert as many as two years of receipts to euros. "You have to be able to draw comparisons with your current costs and revenues," he says.

But Müllerschön is not sweating this internal conversion process. Uzin deliberately laid the groundwork for the switch in 1995 when it invested 1.6 million DM in revamping its computer systems. "We did this with both the euro and the Year 2000 in mind," he says. Uzin decided it had to move away from the hodgepodge of programs crafted by its in-house programmers.

Uzin switched in October 1996 from its mainframe computer, Groupe Bull's DPS 4000, to a client/server model. It chose a Primergy 760 server from Siemens Nixdorf Informationssysteme AG that runs under Microsoft Corp.'s Windows NT and in-

cluded an Oracle Corp. database. At the same time, Uzin installed SAP AG's R/3 3.0 software packages for finance, controlling, logistics, production and sales at its headquarters. A big selling point for R/3 was its multicurrency conversion capabilities and Y2K compatibility, Müllerschön says.

After laying that groundwork, Uzin formed a 10-man project team, including Müllerschön and reps from the IT group, to get Uzin ready for the euro. The company expects to invest some 100,000 DM in the project, based on the estimated number of man-hours employees will spend.

COSTS STILL REASONABLE

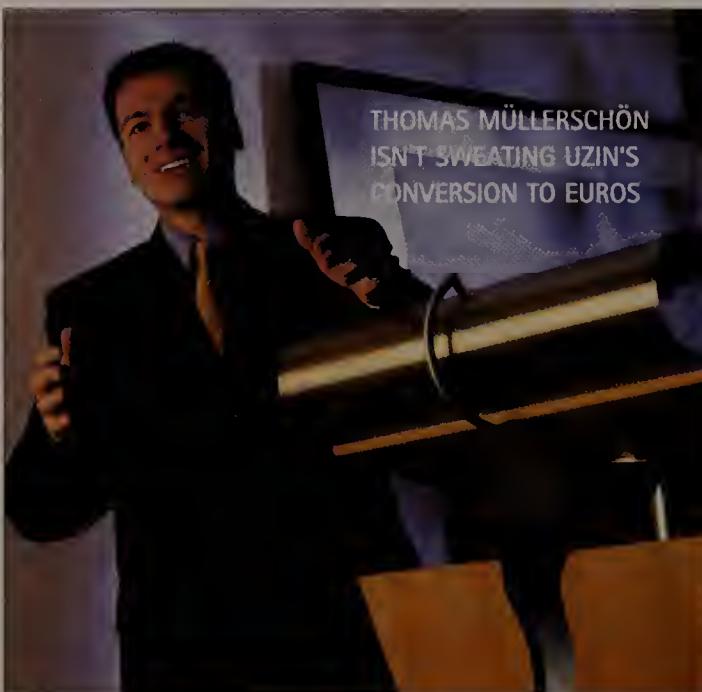
But the actual IT conversion hasn't yet ratcheted up Uzin's costs. Uzin is serving as a trial company for SAP's new Version 4.0B of R/3, launched in May, and thus has access to free software and consulting as part of its existing maintenance contract with SAP. Siemens Nixdorf is also supplying one of its Primergy servers for the trial.

R/3 4.0 has added features for euro conversion, such as the ability to display data in both the local and the transaction currency — a feature geared to companies that want to support customers in the double currency phase, says Hans-Joachim Wuerth, euro project manager at SAP.

Uzin also acts as an adviser to its suppliers and customers, many of which are not as far along in their euro preparations. The company even sends out monthly checklists to its customers to make sure their hardware and software are euro-compliant. "This is an added service which builds customer loyalty," Müllerschön says.

The company is now fully concentrating on this external effort, he says. R/3 will be installed for the first time at Uzin's offices outside Germany, naturally with the euro update. Uzin is also looking at business-to-business solutions to facilitate communications with suppliers.

D'AMICO IS AN IDG NEWS SERVICE CORRESPONDENT IN MUNICH.



DEMYSTIFYING THE EURO

BY MARTHA BENNETT

With less than seven months to go before the euro becomes a currency in its own right, there is no escaping it: The EMU in Europe is going to start on time, so let's dispel a few myths:

► **MYTH NO. 1:** The euro is a European issue. Not so. The only organizations unlikely to be affected are non-European companies that don't have any dealings whatsoever with euroland (as the 11 EMU countries are referred to). True, the euro will be the only officially quoted currency for EMU countries after Jan. 1, 1999. However, banks will be able to offer their clients rates for the 11 currencies. And companies outside the EMU are not covered by the "no compulsion, no prohibition" principle either, which means companies are not obliged to accept payments in a currency other than the one they have negotiated with their trading partner. Having said that, there is no room for complacency either. While there is no regulation that stipulates the use of triangulation for non-EMU currencies, many enterprises will find it necessary for business reasons to use triangulated calculations. And it's not going to be easy (see Myth No. 3).

► **MYTH NO. 2:** Finance and IT will handle it. Such an approach misses the wide-ranging strategic implications of the EMU. Yes, the IT implications are considerable (see Myth No. 3.) Within the organization, nearly all functional areas are affected. And yet in many companies, the EMU is still an issue that is left to the finance department.

► **MYTH NO. 3:** The IT implications of the EMU are less demanding than those of the Year 2000. Not true. First, the EMU is not about a single conversion; it is about several in the three-year dual currency period: the switch to the euro as the primary currency and the introduction of notes and coins. Second, for countries in the EMU, there are the euro conversion rules to be observed, and we are not talking algorithms here — we are talking about introducing new functions. Third, even if you are fortunate enough to have your financial system vendor provide you with an appropriate upgrade, there are still all sorts of other IT issues to address. For instance, how do you find all the fields that contain financial data (including all those threshold and trigger values)? And is field expansion necessary in order to accommodate converted amounts?

► **MYTH NO. 4:** If you're a non-European multinational, you can leave the euro to your European subsidiaries. This could turn out to be detrimental to your business in the long run for several reasons. For example, take price transparency and supply chain rationalization. With price transparency, once all your prices are quoted in euros, your customers, especially if they are also multi-

national enterprises, will immediately be aware of price differentials. Organizations must have a strategy in place for dealing with this. And with the disappearance of currency risks when dealing with any company in an EMU state, there is enormous potential for rationalizing your purchasing and hence reducing operating costs.

► **MYTH NO. 5A:** Everybody has to be euro-ready on Jan. 1, 1999. Unless you are a financial institution, this is not the case. When to switch to the euro during the three-year transition period is a business strategic decision, but see also Myth No. 5c.

► **MYTH NO. 5B:** Because the final deadline for EMU conversion isn't until the end of 2001, you can ignore the euro until Year 2000 is safely out of the way. Suffice it to say that such an attitude could well put a company's corporate health at risk.

► **MYTH NO. 5C:** The "no compulsion, no prohibition" rule gives enterprises control over when to start using the euro. In theory, this is true; in practice, though, the issue is somewhat like deciding whether to use EDI or not. We are already seeing the evidence of large multinationals pressuring their suppliers to provide pricing and invoicing in euros after Jan. 1, 1999. More than that, it is even happening to companies that are at this time in non-EMU countries such as the UK.

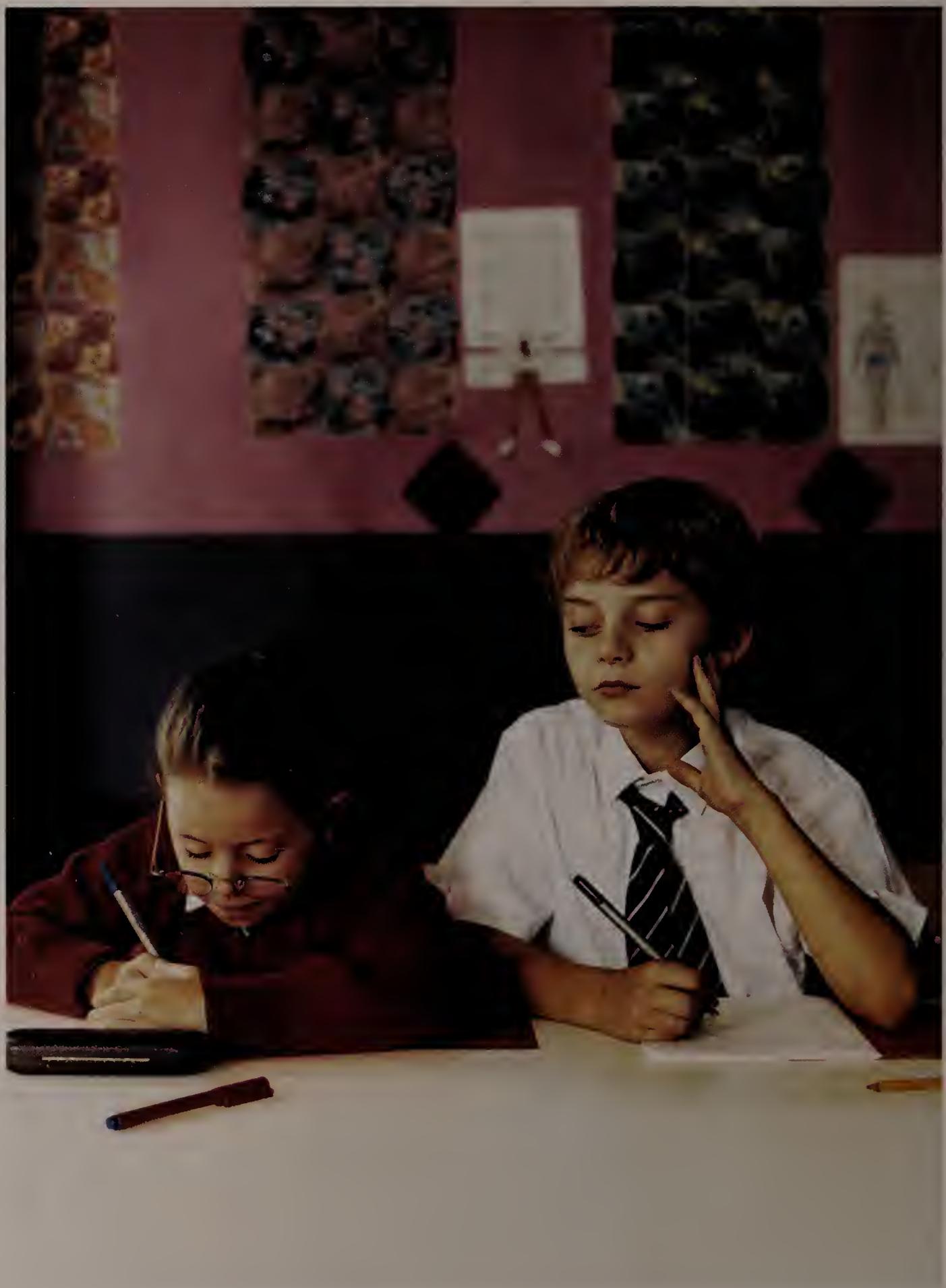
How it will all work in practice remains to be seen. This is, after all, the biggest experiment in economic (and IT) history, and many of the parameters potentially affecting systems are not yet known. Putting the EMU first does have its risks. And there is more and more evidence that other development projects are being postponed indefinitely, which in turn could affect an organization's competitive position.

Depending on the industry sector you are in and who your customers and business partners are, you may well be able to leave most EMU work until after Y2K is safely out of the way. Be sure your company can handle the euro, complete with conversion rules compliance if necessary, but wait before switching to the euro as a base currency and converting historical data. If you

have done nothing at all yet about the euro, you should immediately get going and do an impact assessment. The result may be that you don't need to do much in the immediate future, but nonaction should be a positive decision, not a default.



BENNETT IS AN ANALYST AT GIGA GROUP IN LONDON.



IBM security [REDACTED]

[REDACTED] gives thousands of companies

[REDACTED] the power to distribute sensitive information [REDACTED]

[REDACTED] over networks and the Web,

while controlling who sees what. [REDACTED]

IBM security [REDACTED]

[REDACTED] helps protect [REDACTED]

[REDACTED] millions of online financial transactions every day.

IBM security [REDACTED]

[REDACTED] can help you protect your e-business [REDACTED]

To see how [REDACTED] call 1 877 IBM EBIZ(3249), ext. NC40

[REDACTED] www.ibm.com/e-business

Solutions for a small planet™





ARE YOU READY FOR E-BUSINESS?
(YOUR CUSTOMERS ARE.)

To learn how to put the latest e-business solutions from IBM to work for you,
visit www.ibm.com/e-business

Solutions for a small planet™ IBM

IBM, the e-business logo and Solutions for a small planet are trademarks of International Business Machines Corporation in the United States and/or other countries. © 1998 IBM Corp.

Washington Watch

INSIDE

THE FEDERAL GOVERNMENT is emerging as a key player in the IT world. As the nation this week celebrates its independence, we look at several issues where IS and Washington are colliding.



Veepspeak.

Vice President Al Gore, who is identified more than any other U.S. politician with computing, answers questions from *Computerworld* on high-tech visas, the Internet and the year 2000 problem. *Page 74*



Labor pains.

Lawmakers are jumping headfirst this summer into IT labor-shortage issues. But not everyone wants them at the party.

Follows page 81

Hot topics.

Telecom reform, Internet taxation, the Microsoft antitrust case, software licensing and the year 2000. IS managers, including Scott Matlack, share their views.

Page 76



Lobby, anyone?

Columnist Jim Champlin has a list of technology policy issues IS managers should bring up with their congressmen.

Page 79



Nothing about encryption is easy.

Companies need to secure their overseas transactions, but federal restrictions can tie their hands.

Page 80

MONEY & POLITICS

POLITICAL CONTRIBUTIONS

Microsoft tops all high-tech donors

Microsoft Corp. is the target of an antitrust suit filed by the U.S. Department of Justice, but that hasn't deterred it from becoming the top campaign contributor among computer companies for the 1997-98 congressional election cycle. Yet two-thirds of that money has been sent to the party that isn't running the executive branch.

The following chart shows the top 10 contributors among computer companies for the cycle as of May 1 and how much of their money went to the two major parties. The data comes from the nonpartisan Center for Responsive Politics in Washington, which gleaned its information from the Federal Election Commission.

TOTAL \$	DEM.	REP.
1. Microsoft Corp. \$298,219	33%	67%
2. Oracle Corp. \$217,913	97%	3%
3. Electronic Data Systems 188,726	44%	56%
4. Gateway 2000 132,604	20%	80%
5. J. D. Edwards & Co. \$104,500	0%	100%
6. CDB Infotech \$101,000	0%	100%
7. Cisco Systems, Inc. \$78,000	81%	18%
8. Digital Equipment Corp. \$68,300	36%	64%
9. IDX Systems Corp. \$64,500	100%	0%
10. CNET \$64,402	97%	3%

*These figures include money from political action committees; "soft money," contributions to party committees that support general party activities; and individual contributions of at least \$200.



Money & Politics, page 75

VP Q&A

Interview with Al

MORE THAN ANY OTHER U.S. politician, Vice President Al Gore is identified with computing. Gore may have a true appetite for information technology; on the other hand, he may just have sharp public relations staffers who know a tsunami when their man's surfing one. Either way, the vice president is widely perceived as tech-savvy.

And if he wants to be president in 2000, he'll need to be. The next administration will get its fill of IT issues. For starters, this is the 2000 election. Need we say more? Meanwhile, the information superhighway is bumper-to-bumper with privacy questions and domain-name hissy fights. And don't forget the Clinton-Gore encryption-export policies, which are popular with . . . well, with nobody, as far as we can tell.

Computerworld submitted a list of questions to the vice president. Gore's written answers follow.

CW: For the most part, the Clinton administration has supported severe limits on encryption export. The computer industry is almost unanimously opposed to those limits. Lately, the administration seems to be hedging on the issue. Where do you stand and why?

GORE: The administration continues to believe in a balanced approach — promoting the growth of secure electronic com-

merce, protecting the public safety and national security, and enabling the continued technology leadership by U.S. industry. No sound policy can ignore any of these goals. The challenge is to find approaches that support all of them.

Considerable, encouraging progress has been made over the past year and a half by relying on industry-led, market-based solutions, particularly in the area of key-recovery encryption for stored data. However, the administration is not wedded to any single technology solution. We believe the best approach is to pursue a good-faith dialogue over the coming months between industry and law enforcement, which can produce cooperative solutions, rather than seeking to legislate domestic controls.

CW: What is your position on the Internet Tax Freedom Act, and should such a tax also apply to mail-order companies?

GORE: There are competing versions of the bill in the House and Senate, so it's hard for me to comment on the details of the legislation at this time.

The president and I support a temporary moratorium on Internet-access taxes and new, discriminatory taxes on electronic commerce. We would not want inconsistent and duplicative taxation by 30,000 different state and

local tax jurisdictions to stunt the development of the Internet.

At the same time, we must not allow the Internet to become a tax haven that drains the revenue our states and cities need to educate our children and keep our streets safe. We clearly need to establish a commission that will explore the longer-term issues raised by electronic commerce, and develop a policy framework that is simple, fair and will allow the Internet to flourish.

CW: Nearly every week we hear that another government agency is in rotten shape on its year 2000 computer project. Is the current government oversight of year 2000 preparations working?

GORE: The current oversight of the agencies is working and is providing us with valuable information about the status of agency actions designed to solve the year 2000 problem. We are monitoring agency progress very closely, and I think you'll see the agencies make great strides over the next several months. Agencies are required to submit to the Office of Management and Budget, and to Congress, quarterly reports on their progress. Furthermore, over 30 executive branch, independent and regulatory agencies have representatives on the President's Council on Year 2000 Conversion,

which is working to coordinate year 2000 efforts and address agency needs in this important area.

CW: To pursue that idea: The year 2000 problem could be a disaster for you if you're elected president. Are you making any disaster-recovery plans in case government computers shut down?

GORE: One of the key components of our year 2000 effort is contingency planning. While our goal is to ensure that every critical federal system will be up and running on Jan. 1, 2000, we shouldn't mislead anyone. We need to have in place contingency plans that will enable agencies to continue to provide services to their customers if systems are not repaired in time. Some agencies have completed work on their contingency plans for critical business processes, and others are still working on them, but I'm confident that this planning will help us avoid any major service disruptions.

CW: What is your position on expanding the quota of foreign technology workers that can be let into the U.S.? Is increasing the number of H-1B visas potentially a sellout to the immediate interests of high-tech firms?

GORE: The administration is prepared to support an increase in the number of H-1B visas, but only if

SPECIAL REPORT IT AND THE FEDS

The vice president discusses high-tech visas, Internet taxes — and the year 2000 hot seat the next chief executive will inherit

Gore



it's linked to reforms of the H-1B program that protect American workers, and to an increased investment in training for American workers.

Many leading IT companies are working to expand the number of American workers with IT skills. Several months ago, for example, I announced an initiative by Cisco [Systems, Inc.] to expand IT training programs for high school students in our poorest inner-city schools. I urge

other high-tech firms to do more to ensure that America has the best IT workforce in the world.

CW: What would a Gore administration do to support basic research and development in the private sector that leads to leading-edge new products? The R&D tax credit has arguably been a major boon to U.S. high-tech companies. If elected president, would you support an expansion of that initiative?

GORE: President Clinton and I have been big supporters of the R&D tax credit. Earlier this year, I announced that the administration had included an extension of the R&D tax credit in our budget. I'd like to see it made permanent — so that companies can plan on it.

CW: What's your favorite government World Wide Web site? How should some government Web sites be improved to be

more useful for the public?

GORE: That's a hard question, because I have so many favorites. I think the NASA team did an outstanding job with their Pathfinder Web site, by allowing millions of Americans to explore the surface of Mars. I'm also very proud of a Department of Labor site — America's Job Bank — that has gotten more than 275 million hits in the last six months.

We're encouraging agencies to make the Web more useful for the public in a couple of ways. First, we're organizing information around subject as opposed to agency. Agencies are working together to create user-friendly one-stop Web sites for small businesses, consumers and nonprofit organizations.

Also, we're moving from information to transactions. The first generation of government Web sites gave the public information about what the agency does. We'd like the American people to be able to do business with the government online — get a student loan, apply for a passport, etc.

CW: How much do you use the Web yourself?

GORE: I find the Web incredibly useful. I use it to research speeches, track financial markets, follow breaking news stories, communicate with my staff or find out what the weather is likely to be when I'm on the road. □

MONEY & POLITICS

CONTINUED FROM PAGE 74

Microsoft vs. Oracle

In the most recent four election cycles, **MICROSOFT** not only has increased its contributions to federal candidates and parties more than fivefold, but it also has shifted the lion's share of that money across the aisle, according to the Center for Responsive Politics. In the 1991-92 election cycle, 79% of Microsoft's money went to Democrats; in the current cycle, 67% has gone to the GOP.

CYCLE	TOTAL
1991-92	\$53,283
1993-94	\$63,743
1995-96	\$235,484
1997-98	\$298,219
(as of May 1)	

But **ORACLE** has pumped up its contributions by more than 82% between the 1995-96 and 1997-98 cycles, from \$119,650 to \$217,913. And, unlike Microsoft, Oracle has pushed a whopping 97.4% of its money — \$212,413 — to Democratic coffers in this cycle.

CYCLE	TOTAL
1991-92	\$94,800
1993-94	\$28,250
1995-96	\$119,650
1997-98	\$217,913
(as of May 1)	

LOBBYING

IBM's deep pockets

In 1996, the high-tech companies that contributed to campaigns also spent \$19.9 million to hire lobbyists to try to influence legislation in Washington. The biggest spender? IBM, which shelled out \$4.88 million, according to the Center for Responsive Politics, whose figures come from lobbying reports filed by the companies.

Here are the top five from 1996:

1. IBM
\$4,880,000

Money & Politics, page 76

MONEY & POLITICS

CONTINUED FROM PAGE 75

2. Texas Instruments, Inc.
\$3,620,000
3. Electronic Data Systems
\$1,760,000
4. Microsoft
\$1,140,000
5. Netscape Communications Corp.
\$960,000

CONGRESS' IT DOCKET

By Matt Hamblen

Technology-related bills made a big splash on Capitol Hill in 1997 and continued to make headlines in the second year of the 105th Congress.

Lawmakers will consider whether to tax Internet commerce, will seek ways to stop spam, or unsolicited E-mail, and will explore ideas on how to address worker shortages and year 2000 problems in the government and private sector.

Many IT measures may take second billing to cigarette regulation and campaign finance reform, but some are high priorities.

Here's a look at the bills most important to IS:

Internet taxes and regulation

The Internet Tax Freedom Act

Status: One version is before the Senate. The House approved its version last week.

Purpose/impact: The version before the House would delay new state and local taxes on Internet-based commercial transactions for three years.

It also would set up a commission to report back to Congress with ways to define how electronic commerce should be taxed and would create a mechanism for each state to decide whether to establish a statewide, uniform tax as opposed to dozens or hundreds of taxing districts within a state.

States would face the issue of how to create a uniform tax

CYBERTAXATION

In 1997, retail sales over the Internet generated \$2.6 billion in revenue. Internet access services accounted for \$8.4 billion, and online advertising brought in another \$1 billion. Business-to-business commerce was pegged at \$8 billion. So it's no surprise that states are casting hungry looks at the Internet, wanting to tax all Internet use and sales regardless of a vendor's location.

Enter Sen. Ron Wyden (D-Ore.) and Rep. Christopher Cox (R-Calif.), sponsors of The Internet Tax Freedom Act, which would "establish a national policy against state and local government interference with interstate commerce on the Internet or interactive computer services," according to its official title. Under provisions that give Congress jurisdiction over interstate commerce, the bill would establish a three-year moratorium on the imposition of Internet taxes while a study committee comes up with recommendations. The bill is now before the Senate; the House gave its approval last week. Presidential approval, if it reaches the Oval Office, is certain.

IS VIEW: States can (and 13 do) tax the offerings of 'net service providers. If the bill is defeated, more states may follow and levy their own taxes. The bill's significance to information technology managers is twofold. First, vendors would have to modify tax software if current rules are changed. Perhaps more important, companies that plan to use the Internet for telecommunications would have to revise their budgets, if not their plans. For instance, if a 5% state tax forces a like increase in a company's Internet budget and that hike is rejected by management, it may require the company to cut back on the services it buys in order to stay within budget constraints. Then, there would be the financial impact related to increased data entry costs associated for a company, such as a department store, to act as the tax collector for a variety of states.

Legislative proponents hope to see the bill adopted and signed into law before the 105th Congress adjourns later this

year. But nothing is certain, particularly in the Senate, where rules permit attaching irrelevant amendments to a bill, some of which might prompt the bill's defeat or move the president to veto it.

UNIFORM COMMERCIAL CODE

Technically it isn't a Washington issue, but IT managers may also worry about a software industry attempt to amend the Uniform Commercial Code (UCC), the guideline that 49 states follow in regulating commercial transactions. (Louisiana has its own code, but the differences are minor.)

IS VIEW: At stake, says Susan Ny-



on the

cum, the attorney who represents the Society for Information Management (SIM) at drafting sessions for the proposed amendment, are software licensing and sales contract provisions that currently protect the buyer.

SIM would prefer the amendment, known as Article 2B, not be enacted, Nycum says. "IT management would gain nothing and lose what protections they already have under Article 2," she says. Article 2 of the UCC deals with sales transactions and requires that goods must work when they are sold. Written in the 1950s, it says nothing about intangible goods such as software.

Responsibility for maintaining the UCC rests with the National Conference of Commissioners for Uniform State Laws (NCCUSL) in Chicago, which is made up of about 300 commissioners appointed by their states. Individuals representing various interests, called advisers, take part in the discussion and socialize with commissioners during breaks. Representatives of software makers bent the commissioners' ears for two years before Nycum got involved, she says. "What the user community found was a vendor's wish list of items

Taxes, telecom reform, contract law, year 2000 and Wintel — what the feds and states do will affect IS operations for years to come

Get inside COMPUTERWORLD

DO IT NOW

and save over 80% off
the single copy price.



Call us toll-free at:

800-552-4431

Outside U.S.: (740) 382-3322

Fax your order to:

(740)382-1058

E-mail:
circulation@cw.com

51 issues for \$48.00 ~~\$39.95~~

First Name

MI

Last Name

Title

Company

E-mail address

Address

City

State

Zip

Address Shown: Home Business New Renew *U.S. Only, Canada \$95, Mexico, Central/South America \$150, Europe \$295, all other countries \$295. Foreign orders must be prepaid in U.S. dollars. Single copy price: \$4.00/issue

COMPUTERWORLD

B4F8 V

51 issues for \$48.00 ~~\$39.95~~

First Name

MI

Last Name

Title

Company

E-mail address

Address

City

State

Zip

Address Shown: Home Business New Renew *U.S. Only, Canada \$95, Mexico, Central/South America \$150, Europe \$295, all other countries \$295. Foreign orders must be prepaid in U.S. dollars. Single copy price: \$4.00/issue

COMPUTERWORLD

B4F8 V



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

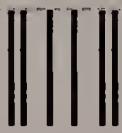
BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 55B MARION OH

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P O BOX 2044
MARION OHIO 43306-2144



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 55B MARION OH

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

P O BOX 2044
MARION OHIO 43306-2144



**Money-Back
Guarantee**

If you are ever dissatisfied with your subscription for any reason, simply cancel it. We will refund the full amount paid on unmailed issues.

COMPUTERWORLD
P.O. Box 2044
Marion, Ohio 43306-2144

SPECIAL REPORT IT AND THE FEDS



NICK CARDILLO/CHICHO

Scott Matlack of the Communications Managers Association says telecommunications reform will give IT managers "a single point of contact" to buy local and long-distance service

Government

By Miryam Williamson

to include in a contract," she notes.

Opponents see many flaws in the current draft. It doesn't, for example, prevent a vendor from building in, without the customer's knowledge, a "back door" that allows installed software to be disabled. Nor does it protect customers from software that doesn't do what it claims to do, such as tax software that fails to conform to Internal Revenue Service code. Those who buy software, whether in bulk or at retail, would have no guarantee they could return a product for a refund if it proved too buggy or inadequate to perform the task for which it was purchased.

A final vote was to have been taken at the NCCUSL's annual meeting next month, but it has been postponed a year for more drafts and arguments. If approved, it will be introduced into state legislatures.

TELECOMMUNICATIONS REFORM

Promised the benefits of increased competition among telephone companies when President Clinton signed the Telecommunications Act of 1996, telecom managers are still waiting for results. The Federal Communications Commission offered a powerful incentive to the regional Bell operating companies (RBOC) born out of the 1984 split-up of AT&T, in hopes of persuading them to let local competitors use their switches and wires. If they complete a 14-point checklist demonstrating they have opened their markets to competition, the RBOCs may compete in the lucrative long-distance market.

The RBOCs are eager to offer long-distance services, but observers say they've been reluctant to part with their local monopolies, which renders the competition portion of the 1996

law largely ineffective. They have dragged their feet in meeting the requirements, says Berge Ayvazian, a telecommunications analyst at The Yankee Group in Boston. "If you had a monopoly for 100 years, wouldn't you like to protect it? The benefits of telecom reform that Congress promised haven't come to be and aren't likely to in the near term," he adds.

IS VIEW: Saving money isn't the only issue, says Steven Martin, a partner at Deloitte & Touche in Washington. The telecom portion of a corporation's budget ranges from 0.5% to 4% of the total, so lower prices would have little impact on a company's bottom line.

But telecom managers are looking for improved service levels — for example, customer care, billing and provisioning — and the added technology options that increased competition

MONEY & POLITICS

CONTINUED FROM PAGE 76

rate instead of their many taxing entities, including cities and counties. That process could keep the lobbyists for electronic-commerce vendors and practitioners busy for years.

Electronic-commerce practitioners have told lawmakers that they don't welcome the prospect of being taxed by thousands of entities and that taxation should be simplified. President Clinton and many lawmakers say that eventually there will be a need for an electronic commerce tax in order to be fair to states that depend on tax revenue from in-person sales.

Outlook: The measure should ultimately pass, observers say, because it gives opponents years to work out new tax mechanisms for Internet commerce, as well as for mail- and telephone-order businesses. With a large-scale shift of commerce to the Internet, states will certainly want the ability to tax transactions to avoid loss of revenue.

The sticking point will be how a mail-order company is treated, as it now avoids taxes unless it has a physical presence in a state. So states, and eventually Congress, will need to evaluate taxes on that sector of the economy as well. The process of enacting any new tax is always deliberate. Some analysts caution that the creation of new taxes on the Internet could lead to a discussion of a national sales tax, with different rates for each state.



Internet Gambling Prohibition Act

Status: Before the Senate following committee passage last fall.

Purpose/impact: The act would outlaw Internet betting in states where it isn't already legal, subjecting violators to fines and up

Money & Politics, page 78

MONEY & POLITICS

CONTINUED FROM PAGE 77

to two years in prison. Electronic-commerce proponents favor attempts to clean up the Internet for other commercial ventures. Companies creating gambling sites would have to rethink their plans.

Outlook: Gambling lobbyists have delayed the bill, so the future is uncertain.

Year 2000

Computer Remediation and Shareholder Protection Act of 1999

Status: Before the Senate Banking Committee.

Purpose/Impact: Requires publicly traded corporations to make specific disclosures in initial public offering statements and quarterly reports regarding the ability of their systems to operate after Jan. 1, 2000. Presumably, if companies have to disclose readiness and what they are spending to become year 2000-ready, investors will react accordingly. That, in turn, could force boards of directors to spend more for systems personnel to get ready.

Outlook: Sen. Bob Bennett (R-Utah) sponsored the measure last fall, and the Securities and Exchange Commission began to require the reports without legislation. Earlier this month, Bennett said he was disappointed about the lack of information in the first SEC reports and might push again for the bill's passage.

Year 2000 Appropriations

Status: Approved by the Senate Appropriations Committee.

Purpose/Impact: Would provide \$2.25 billion in emergency funding in fiscal 1999 to help ensure that the government is prepared for the year 2000. The government has pegged the cost of fixing its own systems at \$5 billion, and President Clinton could tap into a \$3 billion contingency fund.

would bring. Martin says telecom managers are very frustrated, despite major changes since the AT&T breakup, including a drop in the price of a long-distance call from 35 cents per minute to 5 cents per minute. More recently, however, prices seem to be flat or increasing, service levels are improving and the 1996 law's promise of more competition and innovation has yet to be fulfilled.

"Could things go faster? Sure, but such obstacles as the Federal Communication Commission's limited resources and competing stakeholders' agendas have created major impediments," he says.

Scott Matlack, president of the Communications Managers Association (CMA) in Morristown, N.J., sees a potential benefit to IT managers in having "a single point of contact to purchase local and long-distance service." But he echoes Ayvazian's pessimism. In a March 13 letter to FCC Chairman William E. Kennard offering the CMA's support in efforts to aid business users of telecom services, Matlack wrote: "True and effective competition is still years away. . . . Clearly, a resolution to these problems . . . must be reached."

Martin says he foresees "a very slow process that will spin off little victories for the customer from time to time." But, he predicts, "In five to 10 years we won't be able to remem-

ber when there wasn't total competition for phone service."

WASHINGTON VS. WINTEL

The Justice Department is asking the courts to decide if Microsoft Corp., which owns 95% of the PC operating system market is, by definition, a monopoly. Monopolies aren't illegal, but because they have the power to drive away competitors, they are subject to antitrust regulation not applicable to other companies.

Antitrust suits filed by 20 state attorneys general will be combined with the federal suit. The case goes to trial Sept. 8. Regardless of the outcome, appeals will probably stretch well into the 21st century. The government claims Microsoft is using its dominance to gain control of the Internet, but the implications go well beyond control of the browser market. The Justice Department may expand the suit to cover other products, such as Microsoft's suite of office applications. If the court decides Microsoft is a monopoly, it could be split into smaller companies, as was done with Standard Oil in 1920. (The other side of Wintel, Intel Corp., is embroiled in its own showdown. The Federal Trade Commission this month filed an antitrust action accusing the chip maker of using monopoly power to illegally withhold key information from competitors. Intel disagrees, saying it is within its rights to practice business

as it does.)

IS VIEW: To Dennis Torrell, chief information officer at Sensormatic Electronics Corp., an electronic security systems company in Boca Raton, Fla., the potential effect on Windows 98 is small potatoes because his company probably won't adopt it. But breaking up Microsoft could have detrimental effects in increased costs of negotiating with multiple companies and in decreased integration among products as the new companies go their separate ways.

Torrell says government should stay out of the software business, a view shared by Rob Enderle, director of desktop and mobile technology at Giga Information Group in Santa Clara, Calif. "I think DOJ will fail on this issue, which will make Microsoft feel invulnerable. That's going to have broad implications not only in the computer industry, but also in government," he says.

But Roger Walters, CIO at Booz Allen & Hamilton in McLean, Va., welcomes the suit, albeit reluctantly. "I'm not a government interventionist, but I don't see any alternative," he says. "If Microsoft behaved in a more benign manner, I wouldn't see the need for government pressure. But the way they exercise their market power, who else can speak for the consumer?" □

Williamson is a freelance writer in Warwick, Mass.

Year 2000: Nudge, don't push

They don't want legislation or regulation. Still, those who think Washington should help corporate America solve its year 2000 problem say it can and should do more.

Some year 2000 experts and IS executives have wanted the Clinton administration to speak out and raise awareness of the issue. But it wasn't until a month ago that President Clinton urged business leaders to prepare for what he called a "cyberspace headache." He also pledged to share information with other countries.

The president's words were "good," says John T. Jung, senior vice president and chief information officer at California Casualty Management Co., an insurer in San Mateo, Calif. But he

should have said them three years ago when most U.S. companies were just starting to confront the year 2000 problem, Jung says.

Indeed, the federal government has scored few points with the IT community, either with the year 2000 status of its own systems or in its apparent lack of leadership on the issue in general.

Howard A. Rubin, president of Rubin Systems, Inc. in Pound Ridge, N.Y., has tried to get Washington's attention since 1995. In April, he polled 120 senior IT professionals and 100 business executives on how they feel about the government's role in the year 2000 problem.

Eighty-seven percent of the IT professionals and 72% of the executives said Washington should be doing something to address the problem, the findings revealed. But more than 90% of those who answered "yes" in each

group said the feds aren't taking adequate measures. What they want, Rubin says, isn't more regulation, but for government to be a facilitator of information from industry.

That's fine with Gary Wilson, year 2000 project manager at The Principal Financial Group in Des Moines, Iowa. But "when it comes to legislative-type action," he says, the government "ought to keep their nose out of it."

Yet earlier this month, the Federal Deposit Insurance Corp. said it would "take increasingly stronger action" against banks it considers year 2000 laggards. The action could include the seizure of assets. And Sen. Bob Bennett (R-Utah) urged the Securities and Exchange Commission to strengthen its requirement for publicly traded companies to report their progress.

Congress, for its part, has

held several hearings on the government's year 2000 readiness. It also has passed legislation giving regulatory agencies more power to push banks and other financial institutions toward compliance.

Part of Washington's apparent reluctance to do more may be out of fear of causing panic, especially in financial markets. John A. Koskinen, chairman of the President's Council on Year 2000 Conversion, said as much in testimony before a Senate committee on April 1.

"While it is important to increase worldwide attention," he said, "we need to avoid creating panic and precipitous, counterproductive activity."

Washington shouldn't launch into panic mode, Rubin adds. "This is a high-risk situation," he says. "But it may not be a crisis."

— Rick Saia

SPECIAL REPORT

IT AND THE FEDS

The past several weeks we have seen vintage Washington meddling and muddling.

First the Justice Department sued Microsoft, then the Federal Trade Commission sued Intel, over antitrust allegations. OK, maybe they're not fun guys, but "Wintel" only brought us the PC revolution!

Next, the administration said it was giving up control of the Internet in favor of some unspecified international nonprofit group. Then, President Clinton told the MIT graduating class there should be a national program to connect all schools and colleges to the Internet. The next day, the Federal Communications Commission said it intended to trim nearly \$1 billion from its "E-rate" program for school Web access. (The E-rate program provides partial funding to schools and libraries for telecommunications services for educational purposes.) What gives?

With critical IT issues in the balance, the government could use some real-world expertise. Talking about "ought-tos," there really should be a blue-ribbon committee of senior technology managers to act as national advisers on technology and business. If that were to come true, here's one view of the government's agenda:

First, radically refocus primary and secondary education. President Clinton has made education a top objective. But we need to go further than teaching kids how to be competent in math and science and putting a PC on every desk. We have to teach children to think differently — analytically, independently, creatively.

The Information Age gives us all mind-boggling knowledge choices — in our work and in our homes. Just look at how our children use the Internet to do research for their science or English papers. Then recall the primitive encyclopedia you used.

Clinton spoke of that in a commencement address at MIT, but 'net access is only half the equation. We must have people with the skills to leverage this vast amount of knowledge and the confidence to make choices.

Meanwhile, technology-driven change may put certain classes of people and regions of the country at a disadvantage if we don't deal with educational change at a national level. Today, an estimated 102 million users are linked worldwide through 30 million host computers. But a study in the journal *Science* found a sharp racial divide: In households with annual incomes of less than \$40,000, whites were six times as likely as blacks to have used the Web the prior week and twice as

likely to own a home computer.

Can the Internet be both a new engine of commerce and a tool of equality? Absolutely. But it will require some good minds to figure out how.

Second, keep our great universities strong with continued financial support for basic research. It's no accident the two hottest areas for high tech and biomedical start-ups are in the backyards of MIT and Stanford.

As we all know, the Internet started out as a research project of the Department of

Defense and a few universities.

Where should Uncle Sam's future academic research dollars go? With big federal budget surpluses looming, the government could use some expert help from our top technology managers on how to productively invest in our future.

Third, stay out of the business of business. Government is not very good at planning and managing business. Yes, it has a role in protecting the consumer and assuring fair play in competition. But it should not go into territory that even brilliant private-sector strategists struggle with.

Microsoft's achievements constitute a remarkable infrastructure and syntax for a universal computer domain. And those who want Netscape's Navigator can still download it for free. Taken to the extreme, would the government tell Michael Dell to ship a Compaq computer in every third box?

Fourth, make it easy to do business with government, both for taxpayers filing returns and for government vendors. Indeed, for the latter, nightmarish bidding procedures have always reduced the number of qualified companies even attempting to work with the government.

Finally, the federal government should continue promoting open markets. The administration's announcement that it will no longer dole out business Internet addresses is a good sign that Uncle Sam doesn't want to get in the way of fast-growing global commerce.

What can you do in all this? If nothing else, E-mail your congressmen. In fact, I'm sending this column to my own senator. If you, too, live in Massachusetts, his address is www.senate.gov/~kennedy/. □

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. His Internet address is JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.

SHAPING A BROAD AGENDA FOR IT



MONEY & POLITICS

CONTINUED FROM PAGE 78

Outlook: As year 2000 testing proceeds, costs could rise, and Congress might need to find more money, but it's unclear whether the emergency fund will be needed by Oct. 1, when the fiscal year begins.

Encryption and authentication

E-Privacy Act

Status: It was introduced in the Senate this month with bipartisan sponsors.



Purpose/impact: Would clear the way for businesses to use and sell encryption products of any strength, including 128- and 256-bit key technology. The current limit is 56-bit keys, widely opposed by encryption makers, who point out that other countries don't set similar limits, thus allowing their software makers to steal the market from U.S. manufacturers. The FBI favors a limit on sales, worried that criminals and terrorists would gain access to encryption tools and thwart law enforcement investigations.

A House measure introduced in February 1997, the Security and Freedom Through Encryption Act, would allow encryption software to be generally available but not when there is evidence that it could be used for military or terrorist purposes. The bill has been referred to the full House by three committees.

Outlook: Even the Clinton administration is torn about whether to serve the interests of the software industry or the FBI. There could be a House/Senate split that would stall action in Congress, but sponsors

MONEY & POLITICS

CONTINUED FROM PAGE 79

of the Senate measure say they want the Senate to act by the end of August.

Electronic authentication

Digital Signature and Electronic Authentication Law of 1998, and Electronic Financial Services Efficiency Act of 1997

Status: Both bills are before subcommittees in the Senate and the House.

Purpose/impact: Together, the bills set guidelines for the use of electronic authentication techniques by banks (in the Senate version) and in communications with government and other entities. Banks and other electronic-commerce vendors desperately want authentication that's reliable and would substitute for actual signatures.

Outlook: The Clinton administration opposes the Senate version, saying it's too early to adopt such a change. Don't bet on passage by this Congress.

Privacy

Communications Privacy and Consumer Empowerment Act, and Computer Internet Privacy Protection Act

Status: Introduced in 1997, both have been reinvigorated with recent administration recommendations.

Purpose/impact: Federal Trade Commission recommendations were called for in this legislation, and the FTC recently reacted. It wants more legislation to mandate that companies obtain parental consent when their World Wide Web sites collect personal information from children about them or other members of their families. The FTC is expected to make recommendations about adult privacy later this summer.

Outlook: Many think it's likely

Money & Politics, page 81

EXPORT CONTROLS

Encryption and YOU

By Alan Radding

ENCRYPTION ISN'T JUST for geeks. It's now affecting corporate America. Chief information officers and business executives must pay attention to the debate raging on Capitol Hill over export controls on 128-bit encryption or they may find their strategic plans for everything from globalization to electronic commerce put on hold.

The Federal Bureau of Investigation also wants to extend export encryption controls to cover the domestic use of encryption. That move could finally draw mainstream corporate America into a battle that has been fought primarily by encryption vendors and their global customers.

To keep encryption technology out of the hands of criminals, current law imposes strict controls on the export of 128-bit encryption, which is the most secure encryption currently on the market and the only encryption offering a reasonable assurance that it won't be broken. Because those restrictions apply only to the export of encryption technology, businesses that operate globally — with overseas offices, owners, subsidiaries, customers and partners — are immediately affected. Such companies can't encrypt their electronic communications using American 128-bit encryption without getting an export waiver; they would need that technology at both ends of the communication, thereby necessitating export.

In the grand scheme of things, the number of affected companies is relatively small, and those that most

need encryption, such as banks, can generally get a waiver, though the time and effort involved is startling. "Some large banks I have worked with have had to hire multiple people just to handle this," reports security consultant Sandra Lambert at Lambert & Associates in Los Angeles.

But as more companies jump into electronic commerce on a global scale, the impact of encryption controls will be more broad, Lambert says. You can't conduct truly secure electronic commerce without 128-bit encryption. And if the obstacles to the growth of electronic commerce posed by export controls on encryption aren't enough to raise corporate hackles, proposals already bouncing around Congress to extend controls to domestic usage of 128-bit encryption should bring shrieks of protest.

But the issue of encryption controls hasn't yet made it to the radar screens of most CIOs, even those working in the international arena. "We communicate with our international sites, but we move sensitive information on secure, private lines only," says Bard White, CIO and worldwide director at Spalding Sports Worldwide, a manufacturer of sporting goods based in Chicopee, Mass.

The problem of corporate involvement stems from the low position security occupies in the hierarchy. "Encryption is something to be handled by the security staff or the application developers. They haven't brought it to the corporate executives yet," says

Christian Byrnes, vice president at Meta Group, Inc. in Reston, Va.

On the other side of the debate is the FBI, which wants to keep advanced encryption out of the hands of bad guys. FBI Director Louis Freeh last September told Congress that "the widespread use of robust unbreakable encryption ultimately will devastate our ability to fight crime and prevent terrorism. Unbreakable encryption will allow drug lords, spies, terrorists and even violent gangs to communicate about their crimes and their conspiracies with impunity."

FRIENDLY FIRE?

Nobody in business wants to come down on the side of the bad guys, but some say the FBI approach, based on controlling U.S. encryption technology exports, will only hurt American business while doing absolutely nothing to keep 128-bit encryption technology out of anybody's hands.

"No bad guys are being prevented from getting [128-bit] encryption by U.S. export controls," argues James Dempsey, senior staff counsel at the Center for Democracy and Technology in Washington. Advanced encryption technology can be readily purchased in Europe and elsewhere, far beyond the reach of U.S. export controls. For example, an Australian company in April announced availability of a Netscape Communications Corp. browser with 128-bit encryption built in.

Many think it's likely

Money & Politics, page 81

SPECIAL REPORT IT AND THE FEDS

Current law imposes strict controls on the export of 128-bit encryption, putting any U.S. company that wants to conduct business globally in a tough position

The obvious solution then, is for global U.S. companies to buy their 128-bit encryption from foreign firms. "More companies are going overseas for encryption," says Tom Parenty, director of data and communications security at Sybase, Inc. in Emeryville, Calif. Or they can take other security measures, such as maintaining secure private links or using new technologies. But those alternatives are costly, cumbersome and, in the case of new technology, unproven.

U.S. software vendors that need to build encryption into their products are watching their customers being driven to offshore competitors because of the vendors' inability to include state-of-the-art encryption with their U.S.-made products. U.S. software companies could lose between \$1.2 billion and \$3.3 billion in sales over the next five years because of the encryption issue, according to a study conducted by Economic Strategy Institute, a nonprofit think tank based in Washington. U.S. encryption vendors could lose as much as \$8.9 billion.

Handcuffed by the export rules, U.S. vendors simply can't compete. "Unless a company goes to an overseas supplier, they will not get a seamless encrypted solution," says Erik Olbeter, director of the Institute's advanced telecommunication and information technology program and one of the authors of the study. Patching together a secure global presence using different encryption in the U.S. and overseas is just too difficult. As the rules currently stand, the only way to get effective, global 128-bit encryption is to buy it overseas.

This isn't only a vendor problem. Any U.S. firm that wants to conduct business globally is caught in a tough position. "Encryption is hard to use, so companies want the support for the encryption products they use to be the same in the U.S. and overseas," Byrnes explains.

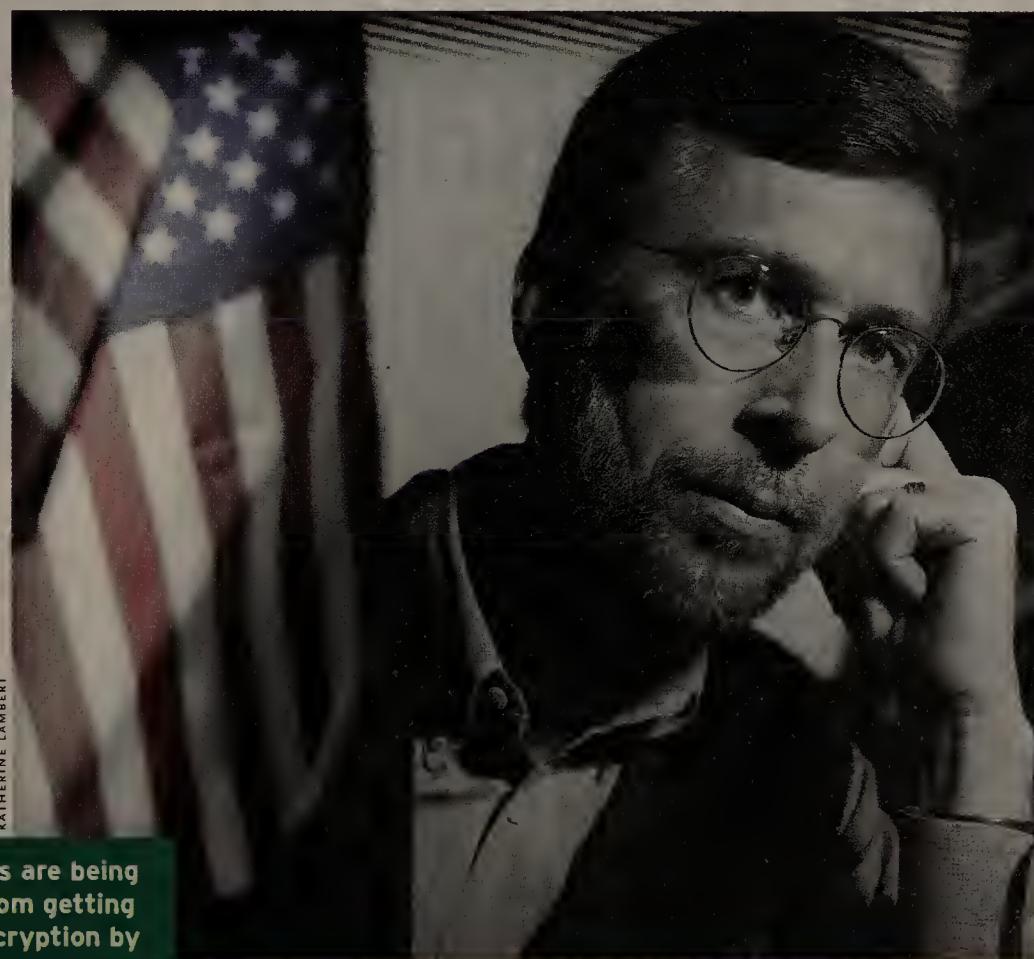
The companies are caught in a catch-22. If they can't use U.S. encryption products for global business, they won't buy them. On the other hand, if they buy encryption overseas, they won't be assured of the support they are accustomed to from U.S. software firms. And if they try to mix encryption products, the likelihood of creating an operational and support nightmare is great. So they do nothing. "A lot of applications simply are not being built because the company can't export U.S. encryption to its own

overseas office," Byrnes concludes.

And the situation may get worse. Much worse. "The FBI wants domestic encryption controls, too," Dempsey says. Then every U.S. business, domestic and global, will be hamstrung.

The FBI says it doesn't want to stand in the way of global commerce or hinder

overseas office," Byrnes concludes. tion, Lambert says, but it takes several people to put the key together. It can't be done without the bank knowing about it. But the idea of government access through a back door without the company knowing is unacceptable. "Companies can't let the government have access to their customers' information without



KATHERINE LAMBERT

"No bad guys are being prevented from getting [128-bit] encryption by U.S. export controls."
— James Dempsey,
Center for Democracy
and Technology,
Washington

the competitiveness of U.S. companies, including U.S. software companies. But it has shown no flexibility, according to those in the industry, thereby obstructing commerce.

Furthermore, "bad guys" can already buy all the 128-bit encryptions they want overseas, and the FBI's proposed solution, public key recovery, draws howls from the people who will have to try to implement it. The FBI's public key recovery scheme requires a company to leave the key to decrypt the information with a third party, a practice called key escrow. It then requires the insertion of a trap door so law enforcement officers can get to the data, even without the knowledge of the company. "You are being asked to introduce vulnerability into an otherwise secure system for no good reason," Parenty points out.

Key recovery by itself might be tolerable. Bank automated teller machines for years have had backup keys for encryp-

the company's knowledge, and they certainly don't want to leave a back door," Lambert continues.

Even the government admits the folly of its encryption policy. In April, Commerce Secretary Bill Daley, in widely reported comments, described the administration's attempts to control encryption technology as a failure. He conceded that the result would be a loss of market share by American software makers to foreign competitors.

New bills addressing various facets of the electronic security and privacy issue are floating around Capitol Hill. With the stakes rising, the confrontation between the FBI and the business community over the issue of encryption export appears to be deadlocked, and top corporate and IS executives are sitting out the early rounds of the battle. The big question is, What will it take to bring them into the fray? □

Radding is a freelance writer in Newton, Mass.

MONEY & POLITICS

CONTINUED FROM PAGE 80

a bill will be introduced and passed by year's end, though corporations are sure to fight it. In addition, the logistics of how a parent's consent is received are unclear.

Medical Privacy in the Age of New Technologies

Status: Introduced in 1997, it's now before two House committees.

Purpose/impact: Provides specific instructions on the use and disclosure of private health information, especially given advances in genetic research and quick information technologies. Medical providers, along with all their data partners, would be bound by the restrictions. A related measure now before the Senate Finance Committee, the Health Care Assurance Act, would include language to create a central national database on health insurance information for processing claims.

Outlook: Action has been slow, but the House measure has 22 sponsors, an indication of popularity.

Antispam

Unsolicited Commercial Electronic Mail Choice Act, and Netizens Protection Act



Status: The Senate version was inserted into another bill against the practice of slamming (switching long-distance phone customers from their preferred carriers without their knowledge), which passed the Senate unanimously in May. The House version is before committees.

IT Skills Management For Today, For Tomorrow

Search thousands of courses,
CBT's, books and more offered
by these learning providers:

American Research Group (ARG)
Boston University Corporate Education Center
Business Communication Review
CBT Systems
The Center for Systems Management
Classic System Solutions, Inc.
DCI
DPEC
ESI International
Hewlett-Packard Educational Services
IDG Books
IKON
Interpersonal Technology Group
Jackson-Reed, Inc.
Learning Tree International
Lockheed Martin Advanced Concepts Center
Network World
NWT, Incorporated
Strategic Management Group, Inc.
Sybase/Powersoft Education
Teknowledge Education Centers
Televerde

PPeople are your most valuable asset. Everyone benefits when you have a clear picture of current staff skills and future skill needs so that people can be developed and deployed to the best advantage. CareerAgent is a comprehensive, customizable, intranet career development tool that will help you increase productivity, reduce attrition, and strategically position your staff to meet corporate objectives.

CareerAgent will help you:

- ▶ Assess skills
- ▶ Manage skill development
- ▶ Plan for future staffing needs
- ▶ Find training resources

CareerAgent is like having your own staff development consultant 24 hours a day, anywhere in the world. Call today.

Call 1-888-25Agent, ext. 6000

Take a test drive. Explore the free Internet version of CareerAgent that is available for individual IT leaders at

careeragent.computerworld.com

COMPUTERWORLD
citizen@agent



dream salary.



dream location.



dream boss.

in your dreams?
Not anymore.

Got big dreams? We'd like to help make them come true.

You already know that *Computerworld* is the best place to begin your job search. Now, it's also the place where your search ends. Introducing **Computerworld Career Central**, where you don't have to find the jobs, *because the jobs find you*.

If you're a software development professional, *Computerworld Career Central* is the most effective, hassle-free way for you to find a new job—and it *costs you nothing*. Just visit www.computerworldcareers.com, fill out a Member Profile and submit it. We find jobs matched to your skills, experience and preferences and send them to you, *confidentially*, via e-mail. We do the work, so you don't have to.

It's free, it's easy, and most important, it works.

So you've got nothing to lose, except maybe your dream job. www.computerworldcareers.com

COMPUTERWORLD
 Career Central™

MONEY & POLITICS

CONTINUED FROM PAGE 81

Purpose/impact: The Senate version requires commercial E-mail senders to identify who they are, their addresses and their phone numbers and requires them to honor requests by consumers who want to have their names removed from mailing lists. It gives the FTC, states and Internet service providers the ability to sue spammers for not complying. The House version requires spammers to pay the burden-of-delivery cost.

Outlook: Expect some version of both bills to be passed by year's end.

Employment

The American Competitiveness Act

Status: The Senate passed its version May 18; now before two House committees.

Purpose/impact: The Senate version raises the annual immigration quota for temporary, highly skilled workers from 65,000 to between 85,000 and 105,000 over four years, beginning in 1999. It also sets fines for employers who use the temporary workers to replace U.S. workers. This measure and several others raise the thorny question of whether companies should use immigrants to fill jobs some Americans say they can perform. (The House is considering a separate bill — passed last month by the Judiciary Committee — that would make it hard for a company to hire a foreigner, unless it could prove that it first had made a good-faith effort to hire a U.S. citizen.)

Outlook: Expect some rise in the current ceiling, which was exceeded months before the end of the current fiscal year and in 1997.

Intellectual property

WIPO Copyright Treaty

Status: Before House and Senate committees.

Money & Politics, page 85

IT LABOR

Everyone in the P

Lawmakers are jumping headfirst into IT labor issues. But not everyone wants them at this pool party

ALWAYS ON the lookout for a popular platform, legislators have seized upon the perceived information technology labor shortage.

The dearth of skilled American workers has struck a chord with everyone from Democratic and Republican representatives and senators up to President Clinton. In a commencement address this year at MIT, the president unveiled a \$180 million program to train middle school teachers to teach students and colleagues about technology.

Many in the IT industry welcome the attention. In fact, they're courting it. Lobbyists from Silicon Valley companies are cozying up to lawmakers on Capitol Hill. In January, the Information Technology Association of America held a convocation to look at ways the public and private sectors could team up to develop more workers with technical skills.

Meanwhile, members of the Society for Information Management (SIM) are preparing a position paper that outlines steps they'd like Congress to take to help them address their own staffing needs.

"I'm pleased that the government thinks this is a national labor crisis," says Ray Hoving, vice president of marketing at SIM. "The big suppliers have the critical mass and the interest to lob-

by in Washington," he says. "But there are a greater number of constituents representing the business user side that the government should be listening to."

Clearly, not everyone in the industry is ready to join the party. Chief among the opponents are those in the staffing industry who say they have been burned by a section of tax law that unfairly penalizes them.

"High-tech issues are easily transformed into political issues," Harvey Shulman says. As a lawyer in private practice in Washington and general counsel for the National Association of Computer Consultant Businesses, Shulman has represented companies in the IT staffing industry since 1982. "I've seen the government in action," Shulman says. "For all its good intentions, there are too many things the government does wrong when it comes to IT staffing."

Right or wrong, more than a dozen IT staffing-related bills litter the floors of the House and Senate, with no end in sight. Among them, three issues seem to be generating the most heat: immigration, education and the so-called independent contractor issue. Following are updates on each:

IMMIGRATION

Land of (unfilled?) opportunities

At press time, two bills were battling it out in Congress, each of which would increase the number of H-1B visas granted over the next five years and let employers hire more skilled foreign nationals. But the two differ considerably.

One is generally considered business-friendly. The other could prevent hiring managers from using the H-1B visa process altogether, says Harry Joe, a partner at the law firm Jenkens & Gilchrist in Dallas, who chairs the immigration law practice group.

The American Competi-

proposes college scholarships for low-income students to study math, computer science or education. It has been referred to three House committees.

The second bill, which should be on the House floor before July, also would raise the number of visas to 95,000 this year, and would continue to raise it to 105,000 next year and to 115,000 by 2000. But this bill, which is sponsored by Rep. Lamar Smith (R-Texas), contains attestations that some employers find draconian.

One provision would require companies to prove they had recruited Americans for each position that they're requesting that an H-1B professional be placed in. Although that "sounds like an excellent provision on its face," says Liese Wright, director of government relations, human resources and education at Texas Instruments, Inc., "it takes away flexibility" and makes it difficult to consider softer skills, such as attitude and how well a person fits into a team.

The bill also requires employers to attest that they aren't laying off a person to hire another who has an H-1B visa — which could lead to irksome disagreements with the federal government over what constitutes a lay-off and whether a direct replacement was made.

If the Smith bill passes



tiveness Act, which passed in the Senate May 18 by a vote of 78 to 20, would raise the number of visas from 65,000 to 95,000 this year and to 85,000 in each of the next four years, with an additional 20,000 from another visa category. The bill, sponsored by Sen. Spencer Abraham (R-Mich.), chairman of the Senate Immigration Subcommittee, also

SPECIAL REPORT IT AND THE FEDS

OOOL

By Natalie Engler



without changes in both the House and the Senate, employers may simply choose not to use the additional visas, speculates Joe, who has specialized in immigration law for the past 18 years. In that event, the bill may do more harm than good.



EDUCATION

Homegrown approach to the skills shortage

Increasing the number of foreign workers may help companies hire additional technical staff in the short term. But the long-term solution is to educate and train more American workers in IT. The question is, Should the government be spending our tax dollars to do this — and if so, in what capacity?

Some say the government should begin by getting involved at the high school level. Too many students arrive at college with "a very outdated notion of who an IT professional is," says

Ritu Agarwal, associate professor of MIS at Florida State University.

SIM's Hoving puts it more bluntly: "A lot of high school kids think that if you want to get into IT, you have to be a geek."

Both would like to see government efforts to address that image problem. At the same time, Agarwal says she'd like to see government-sponsored training initiatives, so training isn't left solely to hardware and software vendors that have a "vested interest in getting their products out."

During the past year, several bills have been introduced in Congress to create partnerships between government entities and businesses. One of those bills would establish regional working groups to train workers in technical skills and would authorize a \$50 million annual grants program.

Others aim to create regional skills alliances, develop multistate private industry councils and establish tax incentives and grants for employers to provide high-tech training.

But there's one potential shortcoming to all of the proposals. With unemployment at a 28-year low, no industry is immune to the labor shortage. And so, in trying to help one industry, the government may hurt another.

Other observers argue

that training initiatives and tax incentives don't get to the root of the problem, which is the need to improve basic education.

A government-enforced set of national standards for secondary schools and teacher qualifications would go a long way, says Rebecca Guerra, vice president of human resources at Adobe Systems, Inc.

INDEPENDENT CONTRACTORS

No man is an island, but he may be soon

At press time, 40 lawmakers from across the political spectrum had lined up behind a bill to repeal legislation that makes it difficult for IT staffing firms and employers to prove a technical worker isn't a bona fide employee.

After a decade of lobbying, it looks as if the passage of a bill to repeal Section 1706 of the 1986 Tax Reform Act is "inevitable," according to one Senate staffer.

What has made the difference? For one thing, Congress has estimated that if it

were to repeal Section 1706, it would lose only \$10 million in five years, much less than was originally believed to be at stake.

At the same time, thanks to the IT labor shortage, the fees technical workers can charge have soared, so more and more are striking out on their own. Hoving is one.

A year ago, Hoving left his post as director of IT services at Air Products and Chemicals, Inc. and formed Ray Hoving & Associates, an IT management consulting firm in New Tripoli, Pa.

"I reached a point in my life where I wanted more freedom of choice," Hoving says. "I enjoy the creativity involved in this work. You get to be at the right place at the right time to do something valuable for a company. Then you move on."

Like others who can charge a premium for their services, Hoving resents government intrusion in that area. "IT staffing companies should be able to serve as brokers, plain and simple," he says. "There is a value-added service in finding meaningful work for contractors. They should not be burdened by the presumption of employment." Not surprisingly, IT industry representatives agree vehemently. □

Engler is a freelance writer in Arlington, Mass.

MONEY & POLITICS

CONTINUED FROM PAGE 84

Purpose/impact: The World Intellectual Property Organization (WIPO) Copyright Treaty would be implemented in the U.S. to make it possible to sue a person who knowingly removes a technical measure used to prevent reproduction of a work in digital format. Music artists and software makers are concerned about free distribution of software, databases and creations without any rights to royalties. Some opponents say the treaty would violate the basic tenet of sharing information freely on the Web.

Outlook: Unclear, given the long passage of time since the bills were introduced in 1997 and other, more pressing, Internet matters before Congress.

Decency

Internet Freedom and Child Protection Act, and Son of Communications Decency Act



Status: Both bills have been before the House and the Senate since early 1997.

Purpose/impact: After the Supreme Court last year struck down the Communications Decency Act of 1996, some lawmakers sought to find other ways to protect children from unsuitable online material, much the way children are protected when watching TV. Firms involved in electronic commerce should note the attention Congress has paid this issue.

Outlook: The Senate version has attracted only three sponsors, but there's much more interest in the House.

Online researcher Mari Keefe contributed to this roundup.

Our World.
Our Industry.



Your Future.

A force of global scope and startling influence in the insurance industry, Zurich Commercial is a true power in the world of financial services.

Ours is a proud tradition of unmatched professional excellence and total customer dedication, and we're seeking the talented and ambitious leaders of the 21st century to carry on our legacy of success. Now is the time to begin building your future on the unequalled strength and limitless promise of Zurich Commercial.

Zurich Commercial will offer you exceptional career development opportunities, an excellent compensation package, an exciting corporate culture where one talented person can make a tremendous difference and business casual is the dress policy every day. For immediate consideration, please send your resume to: Zurich Commercial, Human Resources, Job Code #98IT/SA037, 3910 Keswick Drive, Room 463, Baltimore, MD 21211; or FAX: (410) 338-9222. Our commitment to excellence is matched only by our commitment to diversity - Equal Opportunity Employer M/F/D/V.

System Administrator

We currently have some exciting positions available for technology professionals in Atlanta, Charlotte, Chicago, Kansas City, Orlando, Pittsburgh, and Parsippany.

This position will administer and manage voice and data communications. This includes providing support on PC and LAN hardware and software; providing remote system training to clients; installing, configuring and maintaining equipment; coordinating vendors; troubleshooting; managing, administering and analyzing office telephone systems (Automatic Call Distribution (ACD) Vectoring, Call Accounting, Call Management Reports, Voice Network Trunking, Voice Mail Systems (AUDIX)); and making recommendations to management for performance improvements. Requires 3 years of AT&T G3 experience with CMS and CAS knowledge. Experience with NEC or Lucent System and Windows NT Workstation 4.0 preferred. Some travel is possible.



ZURICH

CONTRACTORS

JOB'S on the
INTERNET:

www.winterwyman.com

INFORMATION SYSTEMS

- Visual Basic/Powerbuilder Programmers
- Messaging: cc:Mail, MS Exchange, MS Mail
- Oracle Developers, Des/Dev 2000, Financials
- HTML/Java/JavaScript Developers
- Integration Engineer (LAN/WAN)
- Mainframe (Cobol, CICS, DB2, JCL)
- UNIX System Administrators (Sun, DEC, HP, AIX)
- AS400 (JD Edwards)
- Oracle/Sybase/SQL Server DBA's
- NT/Win 95/MS Office Support
- Phone Support
- PC/MAC Support
- Novell Admin & Support
- Project Managers/Y2K
- FoxPro/Visual FoxPro Programmers
- Peoplesoft Developers/Analysts



SOFTWARE ENGINEERING

- VC++, MFC, NT, OLE, ActiveX
- Powerbuilder, Sybase, or Oracle
- Unix Device Driver Developer
- C++, Corba
- VB, Excel, Olap Developer
- Access/HTML Developer
- QA Fluent Speaking Hebrew/Arabic/Japanese/Korean
- Internationalization QA
- Chinese/Japanese/German/French Tech Translators
- Internationalization/Localization Engineer
- Spanish Product Developer/Marketing Manager
- QA: Test Automation, QA Partner, WinRunner, etc.
- QA: Web Testing, Silk
- QA: QA Analyst, Year 2000 Test
- QA with AS/400
- QA: Unix, Shell Scripting

BOSTON AND NATIONAL CONTRACTS:
Contact: Donna Byrne 781-630-7007
Outside MA: 800-890-7002 Fax: 781-890-4433
400-1 Totten Pond Road, Dept. CW Waltham, MA 02154-2000
Email: contract@winterwyman.com

Winter Wyman Contract Services

ATLANTA:
Contact: Lang Norris
770-698-0500 Fax: 770-698-0531
Two Ravinia Drive, Suite 950 Dept. CW, Atlanta, GA 30346
Email: atlanta@winterwyman.com

NATIONWIDE COMPUTER
JOB
OPENINGS
VISIT OUR
WEBSITE
www.comptechnet.com

1-800-752-3674

COMPUTER TECH NETWORK

21010 Center Ridge Rd.
Rocky River, Ohio 44116

COMPUTER PROGRAMMER: Design, dvl & install IBM Mainframe 360/370 based software. BS in CS or Applied Math, 2 yrs exp. in Cobol, JCL, ASSEMBLER. 40 hrs/wk; \$40,000/year. Job Order# 583600. Resume to: Shirley J. Gregory, Missouri Division of Employment Security, 1411 Main Street, Kansas City, MO. Must have proof of legal authority to work in the United States.

sales

CONNECT WITH THE BEST.

Talented IT professionals are in demand. But what about meeting your demands? Creativity. Imagination. Drive. All are essential elements a technical career needs and are the perfect description of a career with Sprint PCS. We're America's only 100% digital, 100% PCS wireless network and we've created a company that values and rewards original thinking. To build a career with the team redefining the art of communication, think Sprint PCS. We have excellent opportunities at our corporate headquarters in Kansas City, MO for:

Sprint PCS.

We're
America's
only 100%
digital,
100% PCS
seamless
technology
wireless
network.

Manager - Operations Statistics

You will design, develop, enhance, manage and interpret mathematical/statistical models and databases for continuous information processing as a means of decision support for operations, marketing and investment activities. Other responsibilities include the creation of statistical processes for analysis and model development based on the availability of data and the quality of the results. Qualified candidates must have experience developing large and complex computational models and computer simulations for statistical and mathematical analysis. You must possess theoretical knowledge and background in statistics and applied mathematics, as well as practical familiarity with various statistical software and OLAP tools. 5+ years of relevant experience as well as a Ph.D. degree in the same area are required; effective verbal and written communication skills are a strong plus. Job Code: MOS

Sprint PCS.



Analyst - Operations Statistics

You will implement and maintain statistical/mathematical models for business decision support. Activities involve statistical program coding involving database and output generations as well as building spreadsheets for numerical analyses. Qualified candidates must have experience and knowledge in computer program code writing in SAS, SPSS, SQL and Macro as well as OLAP tools and Excel Spreadsheet. You must have a solid understanding of database structures and format. 6+ years of relevant and similar experience after a B.S. degree or 4+ years of relevant and similar experience after a M.S. degree in the same area is required. Effective communication and writing skills are a strong plus. Job Code: AOS

If your career goals include growth, excitement, and developing/working with the next generation of technology, then Sprint PCS invites you to shape the future with us. We offer an outstanding compensation and benefits package. Interested candidates should send their resumes, specifying job code, to: Sprint PCS, Human Resources, Mailstop MOKCMM0701, Dept. GE/CW/62998, P.O. Box 32547, Kansas City, MO 64171. We are proud to be an EEO/AA employer M/F/D/V. Also, we maintain a drug-free workplace and perform pre-employment substance abuse testing.



Sprint PCS™

The Clear Alternative to Cellular™

Chicago Area
CORPORATE
TECHNICAL
RECRUITING
CONFERENCE
COMPUTERWORLD

Monday
August 31, 1998
Chicago Hyatt
1-800-488-9204

Electronic
Computer Services, Inc.

Analysts/Programmers

& Software Engineers

W-A-N-T-E-D

*Windows NT/Open Database

Connectivity

*AS400/JD Edwards

*AS400/RPG II/IV

*Cobol/MVS/TSO/JCL/IDMS

*DB2 Cobol Programmer

*ISAPI/ASP/C++/VTP/Java

*SAP/APAB/Tech

*Novell/NT/Admin/Analyst

*Oracle: DBAs, Dvlrs, OAs

*Financials/Form/Dev2K

*Unix Sys Admin

*Unisys P/As

*Yr 2000 P/As & B/As

*Sybase/SOL

ECS, INC.

2875 N.E. 191 St., Ste. 904

Aventura, FL 33180

Tel: 305-935-4268

Fax: 305-682-8766

ecsvr@bellsouth.net

DATABASE EXPERTS

Relocating or desire more challenge?

Our focus is DB. Technology

We list outstanding permanent positions

across the U.S.A. Relo & Fees Paid

Sr. DB Expert to \$90k + bonus

Dynamic, multi-natl corp

Will lead corp database planning

Requires exp in multiple RDBMS

DBA/Tech Support to \$80k

Strong performance tuning

Will support large databases

S/W Development to \$80+ stock

C/C++/database development

skills for hi tech software vendors

DB Specialists \$60 - 120 +

Hundreds of opportunities for database

& C/S project mgrs/developers

Large & small companies

many industries

Engineering

Applications Development

Engineer - Analyze, design,

& evaluate engineering sys-

tems using mathematical &

engineering methods in 3D-

space model. Analyze,

design, develop, enhance,

modify, test, & debug

Engineering Application soft-

ware for use in 3D-space sys-

tem modeling & simulation of

industrial facilities. Computer

aided mechanical design &

data processing for mechan-

ical systems in different mod-

els & applications. Perform

Engineering drawings using

AutoCAD. Perform graphics

programming using FOR-

TRAN & C/C++ on PC & SGI

based on GL/OpenGL. Use

ORACLE database for data

manipulation. Req. BS in

Mechanical or Aerospace

Engineering plus 1 yr exp in

job offered. Salary \$62,774/k/

yr. Work 40hrs.wk. Resum

to: GA Dept. of Labor, Job

Order # GA 6249077, 465 Big

Shanty Rd. Mariette, GA

30066-3303 or the nearest

Dept. of Labor Field Service

Office

HAMILTON

TECHNICAL PERSONNEL INC

P.O. Box 369 West Hurley, NY 12491

14-679-4050 Fax: 914-679-5704

cwad@hamiltontech.com

<http://www.hamiltontech.com>

IT Careers

Networking's need-to-know

By Leslie Goff

Though IT skills across the board are difficult to find, hiring managers say networking skills are the ones they really struggle with. *Computerworld* asked four experts for their views on the current networking skills market and what they like to see in a job candidate.

CW: What are the must-have network operating system skills?

CZARNECKI: Installation, configuration and troubleshooting. When it comes to troubleshooting problems, you need to be able to tell whether it's hardware or software — if you're not well-rounded in that, that can be a downfall.

DEITCH: You need a fundamental knowledge of the operating system's operation and administrative tasks, and not just the what and how, but the why and when, also. It's not enough to know how to add a user and how to configure a network protocol or how to install a server. You must understand how all three interact and the effect they all have on each other.

GRAHAM: Applications developers need to know the network infrastructure services, like domain name services; directory services, like Lightweight Directory Access Protocol; security services; proxy services; and firewall services. And they need to know network applications, like the Nov-

ell file service or Network File System in Unix.

CW: What network operating system skills can put one candidate over another?

BOYAJIAN: Multidisciplinary experience — I far prefer a network administrator with database experience over someone who has just done network maintenance.

DEITCH: For me, it's that sixth sense that enables someone to diagnose a situation, come up with causes and solutions in a probable order, and methodically rule each of them out until the problem is fixed — all with little or no information and maintaining a public relations smile.

That skill can't be taught — it's part intuition and part experience.

GRAHAM: Having experience in large-scale client/server production systems that serve hundreds of users. Size does matter. When they have practical real-world experience on a big project, you know they've dealt with the real performance issues.

CW: What other skills do you like to see coupled with network operating system skills?

CZARNECKI: I'm looking for people to maintain servers and help with phone tech support. So I look for hardware troubleshooting abilities, experience with browsers and personal productivity software, and the right

mannerisms — they need to be customer service-oriented and come across in an easy manner. A [user] needs to feel like they're talking to a friend.

Also, understanding the business environment and the needs of the company, because these operating systems have features that may or may not be used in your environment.

DEITCH: Knowing that you're only limited by a lack of research. Experience and training will only take you so far, but after that you have to know where to find the information that will enable you to expand your horizons.

CW: What specific network operating system training or

NT and Unix aside, this work also requires broad experience, problem-solving talent and a 'sixth sense'

Skills

types of project experience do you look for on a candidate's resume?

BOYAJIAN: Some kind of certification, whether Novell or NT.

CZARNECKI: Certification endorses your ability to work with the operating system.

DEITCH: I look for some evidence of a desire for education and professional growth. Ambition drives innovation.

CW: Looking toward the future, what do you think will be the next big thing in the network operating systems arena?

DEITCH: The battle between NetWare and NT will continue into the next millennium. Topology will not be defined by switches, hubs and routers, but by phone numbers, cable addresses and virtual networks.

BOYAJIAN: Microsoft's lack of support for NDS for NT will have a negative impact. They're not allowing people to go both ways, and that's unfortunate.

GRAHAM: Multimedia capabilities will be built in to the operating systems. We'll have increased capacity for multicasting — video and audio delivered on demand over the 'net. With Asynchronous Transfer Mode in the backbone, we can establish paths of quality service. And with improved security, we'll get virtual private LANs. □

It's that sixth sense that enables someone to diagnose a situation and come up with causes and solutions.



THE PANELISTS and HOW THEY RANK THEIR NETWORKING NEEDS

MICHAEL CZARNECKI: Certified Novell Administrator and technical services manager at Network and Systems Professionals Association in Milwaukee

Level of demand*: 3 to 4

Hiring plans: To increase staff by 25% to 50%; seeking people who can perform double duties — help desk professionals and NT or Unix administration

DAVID DEITCH: President of the Network Professionals Association's Atlanta chapter and a LAN systems administrator at a Fortune 1,000 media company in Atlanta

Level of demand: 5

Hiring plans: Company will be seeking LAN and system administrators, intranet developers and end-user support staffers

BRIAN GRAHAM: manager of IT consulting at Columbia University's Administrative Information Services in New York

Level of demand: 4 to 5

Hiring plans: About a 20% increase, including attrition and hires for new positions; positions include client/server developers and Unix application programmers

MARK BOYAJIAN: Information specialist at Ogden Environmental and Energy Services in Westford, Mass.

Level of demand: 5

Hiring plans: (no comment)

* ON A SCALE OF 1 TO 5
1 = LITTLE TO NONE
5 = VERY HIGH

ROMAC INTERNATIONAL, selected to the Forbes Magazine list of America's 200 Best Small Companies for the second consecutive year, is seeking I.T. Professionals with IBM mainframe and client/server experience.

Full-time and consulting positions include:

- Mainframe Programmer/Analyst - COBOL/CICS/DB2/IDMS/IMS
- PowerBuilder/NT/SQL Server
- Visual Basic/File-Net
- Visual Basic/Sybase
- Lotus Notes Administration
- C/C++
- Tandem Programmer & System Administration

ROMAC INTERNATIONAL offers outstanding fringe benefits, stock options, 401K, training and up to \$2000 in performance and referral bonuses.

R ROMAC INTERNATIONAL
4965 US Hwy 42, Ste. 2900
Louisville, Ky 40222
PH: (800) 682-9784 OR
(502) 339-2900
FAX: (502) 339-2888
E-MAIL: ahorner@ramac.com

Equal Opportunity Employer



dream salary.



dream location.



dream boss.

in your dreams?

Not anymore.

Got big dreams? We'd like to help make them come true.

You already know that **Computerworld** is the best place to begin your job search. Now, it's also the place where your search ends. Introducing **Computerworld Career Central**, where you don't have to find the jobs, *because the jobs find you*.

If you're a software development professional, **Computerworld Career Central** is the most effective, hassle-free way for you to find a new job—and it *costs you nothing*. Just visit www.computerworldcareers.com, fill out a Member Profile and submit it. We find jobs matched to your skills, experience and preferences and send them to you, *confidentially*, via e-mail. We do the work, so you don't have to.

It's free, it's easy, and most important, it works.

So you've got nothing to lose, except maybe your dream job.

Programmer/Analyst
(Client sites in Dallas, TX area; subsequent placements throughout TX)
Analyze, design, develop, test, implement, and maintain programs for commercial and financial applications on AIX based systems using ORACLE in an RS/6000 environment. Bachelor's degree in Comp. Sci., Engineering, or Math, and 1 yr. 6 mos. exp. in job req. 40 hrs/wk, 8:30 AM - 5:00 PM, 142.120/yr.
Apply at the Texas Workforce Commission, Dallas, TX, or send resume to 1117 Trinity, Room 424T, Austin, TX 78701. J.O. #TX0480707 Ad Paid by an Equal Opportunity Employer.

SOFTWARE ENGINEER: Analyze user requirements; develop specifications for IBM mainframe applications programs; design programs and files; code, test and implement programs; support production processing and program maintenance using COBOL as the main programming language. Requires a Bachelor's degree in relevant field such as Computer Science and two years experience in job offered or two years directly related systems analysis, design, development, programming and production maintenance and support. Background must include two years COBOL IMS programming experience, 40 hour work week, \$48,000 per year. Send resumes to Mrs. J. Gaston, Division of Employment Security, 13131 New Halls Ferry Road, Florissant, MO 63033; Job Order Number 589945. Ad Paid By An Equal Opportunity Employer.

COMPUTERWORLD
 **Career Central™**

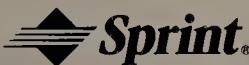
www.computerworldcareers.com

Great ideas fly around here all the time. So do a few other things.

At Sprint Parinet, we take a few things seriously: Technology. Success. Career Development. That's how we've become a leading provider of distributed network management solutions for the Fortune 1000. We'll give you a chance to push the limits, and be rewarded. You'll see your biggest ideas put to use. And since we're vendor-independent, you'll work with a host of technologies. Sound like fun? Then explore the following positions, and watch your ideas — and your career — really take off.

UNIX Administrators Network Analysts NOS Administrators

Ready to join Sprint Parinet? Then bring your best ideas with you. Because in addition to an excellent compensation package, we provide an open, innovative environment where creativity flourishes. Candidates interested in these positions should forward resumes to: **Sprint Parinet, Job Code CW0629; Fax (888) 525-7476; Email: eagles@sprintparonet.com (text format is strongly preferred).** Please indicate geographic preference. EOE, m/f/d/v



Sprint Parinet

Integrating Hardware, Software,
Networks & People

www.sprintparonet.com

Manager of Information Services

Ocean Drilling Program, Texas A&M University
College Station, Texas

The Ocean Drilling Program (ODP) is an international scientific research program that utilizes the unique capabilities of a dynamically positioned drilling vessel to recover sediments and rocks from beneath the global ocean with a goal to better understand the processes that shape our planet.

Texas A&M University (TAMU) is tasked with delivery of the science services of the Program including science/technical support, engineering development/operations/logistics, publications, administration, and information services. The Information Services Department consists of 25 FTE and has an approximate annual budget of \$1.8M. This department is responsible for our integrated information infrastructure that serves our home facility in College Station, the drilling ship, JOIDES Resolution, three distant curatorial facilities, and a large user community located in more than 20 countries. Day to day management of Information Services includes the oversight and direction of support teams in areas of system architecture and design, software and hardware support, and database administration including WWW distribution.

We are seeking a Manager of our Information Services Department who exhibits the following strengths:

An experienced Information Systems Manager who is a team player with both the technical vision and the organizational, interpersonal and communication skills, both written and verbal, to effectively lead the ongoing development and implementation of ODP's innovative computing environment, and to work with ODP leadership setting goals, policies and procedures regarding administration of system and program resources.

Demonstrated capability to manage the design, development and administration, including procurement and project management, of a multi-platform client-server computing environment including PC, Macintosh and UNIX platforms.

Knowledge of modern desktop operating systems (UNIX, NT, Windows 95 and Macintosh OS), as well as familiarity with modern network operating systems (Novell, NT, and UNIX).

Experience in support and implementation of heterogeneous networked systems along with in-depth understanding of current and future communication, server, database, WWW and Internet related technologies and/or platforms.

The position requires interaction with senior level scientists, engineers, and computer specialists from the world's leading earth and ocean science institutions and government agencies. As such, the successful candidate must possess a strong academic background including a Master's degree in Computer Sciences, or related field, and 5 or more years of relevant experience or a Bachelor's degree with 7 or more years of relevant experience. A good overview and understanding of the computer industry and/or related technology trends is desirable. Salary will be commensurate with qualifications and experience. Interested applicants should forward letter of application (reference NOV#981347), resume and names and addresses of three references to:

**Supervisor of Human Resource/Insurance Services
Ocean Drilling Program
1000 Discovery Drive
College Station, TX 77845**

An Equal Opportunity Employer/Affirmative Action Employer. Committed to Diversity

Member of Technical Staff

Member of Technical Staff to conduct independent research and development in the area of telecommunication network management and service provisioning process, including protocol design and system implementation. A key member of Distributed Object Management and Activation for Integrated Networks project, a cutting edge system technology which will make the company a leader in the telecommunication world when deployed. This extremely complex system requires management of distributed information, optimization of available inventories, and scheduling of service work flow. Its development demands operations research work and large scale software implementation (large scale database, OO CORBA, Internet world wide web technologies). Responsible for: (1) formulating and implementing resource assignment algorithms for telephone network elements from switch to outside plant cross box and demark; (2) designing and implementing an intelligent engine for service provision, including direct path assignment, line equipment selection and load balance; (3) Internet gateway communication of client and server processes. Applicant must have a Master's degree in Operations Research. Education or experience must include: Research and hands-on experience in operations research to fulfill the optimization task of large scale resource; software development, C, C++, Java, SQL and TCP/IP internetworking; world wide web technologies including web server configuration, CGI programming, and User Interface design by Javascript and Java, as evidenced by coursework, research, training. Hours per week 40. Salary: \$2,288 biweekly. Send two (2) copies of resume to Case # 71915, P.O. Box 8968, Boston, MA 02114.

Systems Engineer to analyze user requirements, procedures and problems to automate processing and improve computer systems. Render engineering analysis of process specifications, design & development, configuration and execution of software for real time supervisory & distributed computer control system for process control & industrial automation and field installation and commissioning. Design simulation software for system integration, response analysis, fault monitoring, MIS and training. Requirements: Bachelor's degree in engineering, computers or related field, 3 years experience as a systems engineer, and knowledge of VME(Versa Modulo Euro); & Networking applications; C and C++ on UNIX; DCS (Distributed Control System); programmable logic controllers such as Siemens 100U, 135U, ABB, STAL, 600 SATTLINE, and Man Machine Interface tools such as FOOCOS, HDSR, and POT Regulation. Salary: \$55,500/year. Working conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: Mr. Greg Schweng, Manager, Pittsburgh South Job Center, 2100 Wharton Street, Pittsburgh, PA, 15203. Refer to No. 9083759.

Programmer/Analyst (Colorado Springs, CO; Pittsburgh, PA & other US client sites): Analyze, design, develop, test, implement, maintain, & document application systems & subsystems; perform unit testing & documentation. Environment: IBM Mainframe; MVS; TSO/ISPF; JCL; COBOL; DB2; CICS; VSAM; ENDEVOR. Bachelors in Engg, Comp. Sci or Math + 2 yrs exp in job offered. \$58K/yr; 40 hr/wk 9-5. Send resume to: JO# 8037731; Mr. Tom Dembosky, Mgr., Indiana Job Ctr.; 350 N. Fourth St., Indiana, PA 15701.

A revolutionary network that provides voice, internet, Fax and video all at once over a single phone line...

**imagine
that!**

The revolution is beginning right here, right now. Bellcore is leading the way in eliminating the circuit switching network that the telephone industry has depended upon for over a hundred years. We are partnering with Sprint to create the software framework that will provide the intelligence for a first-of-its-kind Integrated On-Demand Network.

An opportunity like this comes along only once in a lifetime. This is your chance to get in on the ground floor of the next breakthrough in telecommunications. We are seeking talented, motivated professionals to join our high performance team. Currently we have these exceptional opportunities in our NEW JERSEY location.

Telecommunications Engineers

This unprecedented opportunity to apply your expertise requires:

- IP & ATM networking
- ISUP, ISDN-PRI H323, UNI 4.0, SS7
- Switching systems experience
- Intelligent Network experience

For the above position, a Bachelor's or Master's degree in Electrical Engineering, Systems Engineering or a related field along with 2-5 years' experience is also required.

Software Professionals Systems Engineers

You can work on truly cutting edge technologies if you possess experience in:

- Switching systems development
- Call Processing
- Fault Management
- Project lead and client interface

Software Developers

To contribute to this paradigm shift, you must have experience in:

- Full life-cycle environment
- C, C++, Unix
- OO, JAVA/CORBA desired

Both of the above positions also require a Bachelor's or Master's degree in Computer Science, Computer Engineering, Electrical Engineering, Systems Engineering or a related field along with 2-5 years' experience.

Project & Contract Managers

To excel in this challenging role, you must have a Bachelor's or Master's degree in Finance, Business or a related field along with a minimum of 5-7+ years experience.

If you are ready for your career to be everything you imagined it would be, NOW is the time to get your resume to Bellcore. Please forward your resume, indicating position applying for, which must include Dept. Code 166 to: e-mail: (preferred method - ASCII text, no attachments) cw98002@hr.bellcore.com, Recruiting and Staffing, Bellcore, 6 Corporate Place, Piscataway, NJ 08854. Only applicants who are being considered will be contacted. No phone calls or agencies, please. We are an equal opportunity employer.

Bellcore
www.bellcore.com

PLATINUM technology*is about Success.*

It's more than just a word - it is our commitment to our clients and our team. PLATINUM technology is a worldwide firm with over \$450 million in annual revenues. A subsidiary of PLATINUM technology, inc., the Global Consulting Organization is a premier provider of enterprise systems consulting services. We currently are seeking talented and dynamic individuals to join our team as:

Java/CORBA Developers**•New York City•**

Responsibilities include analysis, design and development of Distributed applications. To qualify, candidates must possess 2+ years of Internet development and 4+ years Client/Server development experience. Demonstrated experience using OOP/OOD, search and navigation techniques as well as knowledge of Java, CORBA, DCOM, and C++ is essential. Experience with Windows NT and UNIX (Solaris, SunOS, AIX, HP-UX) required. Familiarity with large multi-tier Client/Server systems and SQL programming experience desired. Financial systems and Distributed Objects experience is a major plus. 25% travel is required.

Information Management Consultants**•New York City/Northeastern US•**

Information Management Consulting is a specialized practice focusing its efforts in Data Warehousing, Metadata Management, PLATINUM's Repository Implementations and Business Intelligence tools. Consultants are on-site and actively involved in the full systems development lifecycle, and end-user training. Successful IMC candidates must be well rounded technically with excellent interpersonal skills, leadership ability and a hands-on attitude. 3+ years experience with one or more of the following areas essential: PLATINUM Repository or competing technologies; PL/SQL and/or C++; Database and/or Application Design; Data Modeling; Windows GUI application development; Business Intelligence tools (Forest & Trees, Cognos, Business Objects, etc.) and OOA/OOD. An understanding of Client/Server architectures, relational databases, intra/internets and Windows OS a must. Full-time travel (Monday-Friday) is required.



We offer a competitive compensation package and benefits package. Please forward your resume, indicating position of interest and salary requirements, to: PLATINUM Global Consulting Group, 350 Fifth Avenue, 35th floor, New York, NY 10118. Fax: 212-947-1479. e-mail: kenny.caldwell@platinum.com

PLATINUM

TECHNOLOGY

For additional employment opportunities at PLATINUM technology, inc., please visit our website at www.platinum.com

PLATINUM is an affirmative action/equal opportunity employer, rich in diversity

- Tired of the rat race?
- Fed up with the hassle of metro living?
- Ready for some sanity and a great change?

TRY WINCHESTER! Our beautiful community in the Northern Shenandoah Valley provides an enviable, laid-back lifestyle. And when you feel like it, all the big-city excitement is within easy driving distance.

VALLEY HEALTH SYSTEM, a leading regional health care provider, has the following opportunities in its rapidly expanding Information Systems Department (sign on BONUS available for some positions):

NETWORK ANALYST

Three years experience and five years preferred with UNIX operating systems and associated programming languages. Previous experience in an ABM RS/6000 - ICP/IP environment a plus.

SYSTEM ANALYST

Provide assistance with the detail design of application logic, including application programs, which provides functional reports to customers. The assumption of an analyst role for patient billing applications.

SR. PROGRAMMER/PROGRAMMER ANALYST

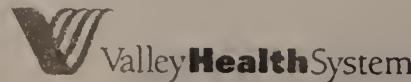
Experience with IBM AS/400 and RPG III required. IBAX SERIES 4000, HBOC software & health care experience are assets.

COMPUTER MAINTENANCE PROJECT SPECIALIST

College degree preferred or technical AS degree required. Must have 5 years experience with large PC networks, installation & support, & 3 years experience with PC software integration, especially Windows 95, AS/400, Microsoft Office & Microsoft Exchange. Demonstrated troubleshooting skills with PCs, AS/400 & Novell Network required; CNE preferred.

All positions require a BA degree or equivalent background.

Please forward your resume and cover letter, specifying position of interest, to: Human Resources Dept., VALLEY HEALTH SYSTEMS, 333 West Cork St., Winchester, VA 22601. Fax (540) 665-5320. EOE M/F/D/V



Programmer Analyst required by a Software Development and Systems Consulting company. Duties: Design, development, testing and technical support of graphical user interface applications on Windows 3.1, Windows 95 and Windows NT platforms using Visual Basic for User Interface. Data storage, data manipulation performance tuning and cursor implementation and optimization of SQL Queries is done using MS SQL Server and Sybase using ODBC connectivity. Reporting is done by using Crystal Reports. Reports are also generated in MS Word and MS Excel using OLE automation. Versions control is maintained by using PVCS and back end batch scripts are generated using PERL. Job to be performed at Chelmsford, MA and various unanticipated client sites throughout the United States, as assigned. Requirements: Bachelor's degree in Engineering or Math or Sci. or Comp. Sci. and two years experience in the job offered or in the related occupation as a Software Engineer. Salary: \$58,000/Year, Hours 8:00 AM to 5:00 PM, 40 hr work week. Submit two (2) copies of resume to Case #72135, PO Box 8968, Boston, MA 02114.

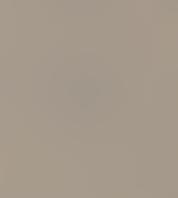
SOFTWARE ENGINEER: To design, test & maintain computer software sys. for clients by applying knowledge of Comp. Science & Engg. Analyze software req. to determine the feasibility of the design & perform test engg. tasks to check for validity of the software by using CICS, DB2, MVS/ESA, COBOL II, JCL, VSAM ON IBM mainframe. 52K, 40 hrs/wk, Atlanta, GA. Must have BS. in Comp. Engg. with 2 yrs of verifiable exp. Apply: Koni Ameri Tech Services, Inc., 5950 Live Oak Pkwy., Ste# 250, Norcross, GA 30093.



dream salary.



dream location.



dream boss.

in your dreams?

Not anymore.

Got big dreams? We'd like to help make them come true.

You already know that *Computerworld* is the best place to begin your job search. Now, it's also the place where your search ends.

Introducing **Computerworld Career Central**, where you don't have to find the jobs, *because the jobs find you*.

If you're a software development professional, *Computerworld Career Central* is the most effective, hassle-free way for you to find a new job—and it costs you nothing. Just visit www.computerworldcareers.com, fill out a Member Profile and submit it. We find jobs matched to your skills, experience and preferences and send them to you, confidentially, via e-mail. We do the work, so you don't have to.

It's free, it's easy, and most important, it works.

So you've got nothing to lose, except maybe your dream job.

COMPUTERWORLD
 **Career Central™**

www.computerworldcareers.com

Grab Hold of Our Global Reach...

GENERAL MANAGERS/ SENIOR PROJECT MANAGERS IT Consulting Services

We are Business Management Data, a business unit of Metamor Worldwide, providing comprehensive global systems development and integration services to Fortune 500 companies.

Join with us in building your career as we develop a world-class IT company providing superior customer service and quality to a diverse client base. Our accelerated growth has created multiple opportunities for proven business leaders who have optimized technology, processes and people to satisfy and exceed customer expectations while meeting forecasted revenue projections.

You will manage large projects or major segments of projects translating client requirements into formal agreements. Your background should reflect in-depth experience leading teams in the implementation of value-added technology solutions. To qualify, you must have 10-12 years of experience with a concentration in consulting services, managing large, multi-year/ location projects.

In addition to an excellent salary and benefits package, we offer a fast paced, entrepreneurial working environment. Positions available at multiple U.S. locations. Please forward your resume with salary history to **BMD, Inc. Attention: HR/SPM/CW, 125 Pacifica, Suite 220, Irvine, CA 92618. Fax: 949-789-0183 email: resume@bmdinc.com**

Visit our website at www.metamor.com EOE

METAMOR
WORLDWIDE

Programmer Analyst

Programmer Analyst (DOT Code 030.162-014): Performs programming and systems analysis in a manufacturing/finance/distribution environment. Develops, enhances, and interfaces systems using PROGRESS 4GL and MFG/PRO software. Interviews internal customers to define and document business requirements. Troubleshoots business systems problems and recommends solutions. Performs business process analysis. Provides back-up support of running systems interfaces. Conducts user and technical training specific to MFG/PRO and the PROGRESS language. Communicates with external resource providers. Communicates with corporate information technology to ensure compliance with the corporate systems, architecture, and standards.

Requires Bachelor of Science or foreign degree equivalent in CS, EE, or related field. Minimum of 2 years experience in job offered or 2 years software experience in a manufacturing/distribution/finance environment. Experience must include PROGRESS programming and MFG software experience.

Job Site: Fuquay-Varina, North Carolina. (\$55,000/year), 40 hours/week. Interested applicants should apply at the nearest Job Service office or submit resumes (including social security number) to Job Service, 700 Wade Avenue, P.O. Box 27227, Raleigh, NC 27611. All resumes must include applicant's social security number. Job Order No. NC7210959

SOFTWARE ENGINEER: Proven ability in using ERWIN & SILVERRUN database design tools to produce Entity Relationship diagrams, Data Flow Diagrams (DFD), and Data Dictionary; Demonstrated ability in using 4GL tool set APT FORMS, APT Workbench, Report Workbench, Data Workbench, Power Builder, SQL Windows and ACCELL; Experience in using SQA suite for automated testing of cross-windows client/server applications and demonstrated ability in writing automated testing scripts using SQA; Working knowledge in Database Administration of SYBASE and UNIFY, database configuration and in optimizing the SQL statements to improve the response and throughput of the application. The job duties are: Duties performed include interviewing the end users to identify the functional requirements, producing Entity Relationship and Data Flow Diagrams using ERWIN and SILVERRUN tools, generating user interface screens using APT Workbench and ACCELL. Requires Bachelors in Engineering (or) Computers with two years experience in software development. 40 hours per week at \$65,000/-per year. Please send resume to Case # 72050, PO Box # 8968, Boston, MA 02114.

In Fortune magazine's recent global survey, highlighting the world's most admired companies, Pfizer was ranked first among pharmaceutical and health care companies. This achievement is reflected in a strong product pipeline with no fewer than 17 drugs in late-stage development or registration. Our latest expansion, both in Groton, CT and international locations, is effectively doubling our capacity to develop new drugs. This phenomenal growth is driving a search for IT professionals who have the talent, experience, and dedication to support our continued success. Pfizer's vast resources and commitment to collective and individual excellence will sustain you in every effort to advance your career. Join us—and work with your own kind at Pfizer: the best.

• Senior Developer

Provide technical leadership to ensure that project tasks utilize all available resources. BS in CS or IT, 5+ years' experience, working knowledge of 4GL, and multiple network operations or global distribution applications required. Experience with Oracle database, Developer 2000, and UniFace6.x also necessary. **Job Code: 2698**

• Database Administrator

We have opportunities for entry and senior-level positions. In a Solaris environment, configure Oracle products such as RDBMS, Developer 2000, SQL Net and Oracle Clinical PSUB daemons, and work with SAS Datasets. BS in Mathematics, CS or Engineering, plus a minimum of 1-3 years' formal technical training with extensive Oracle experience are required. **Job Code: 2699**

• Application Developer

Several opportunities exist for both junior and senior-level computer application developers who will, as part of an interdisciplinary team, analyze, design and develop state-of-the-art information systems to support R&D business initiatives. BS/MS or Ph.D. in CS or a physical science with proven background in programming required. Experience with relational databases (Oracle preferred), and Web-based or client/server applications development desirable. **Job Code: 2701**

• Systems Engineer

We have opportunities for entry-level and senior information technology professionals to provide technical support and leadership in the delivery and implementation of new software applications. These individuals will be part of a team that will manage the software release process; define plans for modifications to the computing infrastructure; manage communications; and provide assurance of interoperability. BS degree or equivalent required. An MBA or MS in Computer Science or Engineering and experience with systems integration, application development or software application support in a distributed computing environment are desirable. **Job Code: 2702**

As one of the world's foremost research companies, we offer a highly professional, forward-thinking environment, as well as an exceptional compensation/benefits package and generous relocation support. Please send your resume to: Employee Resources, Pfizer Inc, Central Research Division, Job Code # ___, Eastern Point Road, Groton, CT 06340. To learn more about our award-winning opportunities, visit us at: www.pfizer.com. We are an equal opportunity employer M/F/D/V.



We're part of the cure.

BAY SEARCH GROUP

National I/S Placement Specialists

VISIT OUR WEB PAGE
www.baysearch.com

Looking for:

Oracle, SYBASE, UNIX,
Visual Basic, PowerBuilder,
Web Developers

1-800-637-5499
Fax: 1-888-737-9889
E-mail: recruiter@baysearch.com

International Data Corporation (IDC) is the world's leading provider of information technology data, analysis, and consulting. With research centers in over 40 countries and more than 300 research analysts worldwide, IDC is uniquely positioned to provide a global perspective on IT market and technology trends.

For more than three decades IDC has identified customer needs, analyzed vendors, assessed technology, and interpreted market trends to support the strategic planning, business development, and marketing requirements of the industry. Extensive customer surveys, in-depth competitive analysis, broad technology coverage, and high-level market analysis make IDC the best source for information on the IT industry.

Research Manager, Application Development Tools

IDC's Application Development Tools program is looking for a seasoned professional to drive market research and consulting for 3GL, Java, and Internet centric development tools. Outstanding skills in data analysis, communication, public speaking, and project management are required. Significant experience in systems design/analysis along with programming in C/C++ and the development of client/server, Java, and/or internet applications also required. An advanced degree in business, economics, marketing, or computer science is strongly desired. Responsibilities include driving primary market research, performing stochastic and empirical analysis, writing research reports and bulletins, and expanding the scope of our custom consulting business. 10-20 years experience in application development requested with direct experience working for a development tools vendor desirable. Excellent writing skills necessary. Job code: CW 307

Senior Publishing Software Engineer

IDC's Publishing Services and Technology group is looking for a Senior Publishing Software Engineer. The role of this position will be to develop, implement, and support IDC's worldwide publishing systems and process automation. Responsibilities include defining business/system requirements, project management, system design, vendor application software evaluation and purchase, systems customization, integration and development, user training and support, and systems support. The successful candidate will be an experienced, well rounded software engineer with demonstrated systems development and project management skills. Strong web design experience necessary preferably in a publishing environment. Job Code: CW 275

IDC offers a comprehensive and competitive benefits package designed to be responsive to the needs of its employees. Available benefits include: medical, dental, vision, pre-tax programs, life insurance, disability benefits, 401(k) plan, Employee Stock Ownership Plan and two weeks of vacation during your first year of employment.

If you are interested in applying for this position, please e-mail your resume (in ASCII form) and salary requirements to idc_jobs@idcresearch.com. Resumes can also be submitted by fax (508-935-4610) or mailed to IDC Human Resources, 5 Speen Street, Framingham, MA 01701.

To learn more about IDC, please visit our home page at www.idcresearch.com.



Manager, Network Operations

Manages team of Network Operators/ Administrators. Reports to Director of Information Technology. Provides 24-hour, on-call, technical and administrative support, monitors tracks and reports system indicators. Supports multi-platform network including VAX VMS, workstations and servers (DOS, WFW/Windows 95/NT, Mac, UNIX) and future adopted operating environments. Requires Bachelor's degree in Computer Science or six years network experience with special emphasis on network system design, troubleshooting and performance required. Three years of network/systems administration with responsibility for a multi-platform computing environment preferred. Job Code #175.

Program Analyst

Develops client/server applications using design specifications with the appropriate NPR programming tools, test codes, and write programs to convert data to new formats. Develops applications using VB and SQL Server. Minimum of 3 years experience with both MS Visual Basic and MS SQL Server required. Access, SQL Server, ODBC, Client/Server development and strong database experience required. Experience with Web Server technologies preferred. Job Code #783.

Send/fax cover letter & resume identifying position by number and title

National Public Radio

Human Resources Department
635 Massachusetts Avenue, NW
Washington, D.C. 20001
Fax (202) 414-3047

For more career information, visit our web site at:
www.npr.org

EOE/AAM/F/D/V



Campus Edition

Issue:
October 31, 1998

Space Deadline:
September 16, 1998

Material Close:
October 9, 1998



1-800-343-6474

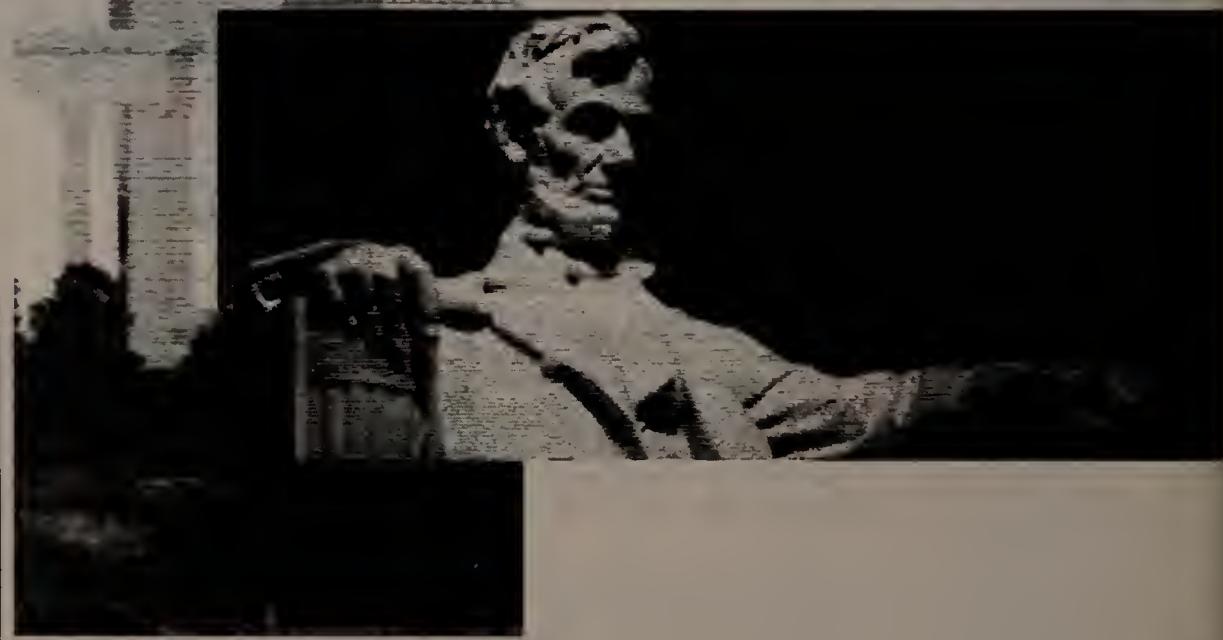


Washington DC

CORPORATE TECHNICAL RECRUITING CONFERENCE

COMPUTERWORLD

Monday
September 28, 1998
Fairview Park
Marriott



Call
1-800-488-9204
for more information

FIND I.T. Consulting Careers HERE

COMPUTERWORLD

Directory of
**CONSULTING
EMPLOYERS**
Spring 1998

computerworldcareers.com

COMPUTERWORLD
careers

SOFTWARE ENGINEER to design, develop, test, implement, maintain and support client/server based application software for various clients using object-oriented methodologies of OMT and Rational Rose, C, C++, Shell Scripts, Awk, RogueWave libraries, RogueWave tools.h++, view.h++, xdb, dbx, Sun Workshop, Tuxedo, SoftBench, purify, quantify, make, and System V IPC on HP-UX and Sun Unix platforms. Require: M.S. degree in Computer Science with a demonstrated ability to perform the stated duties gained through previous work experience/academic coursework; Extensive paid travel on assignments to various client sites within the U.S. Salary: \$80,000 per year, 8 am to 5 pm, M-F. Apply by resume to: Roz L. Alford, A.S.A.P. Co., Inc., 3495 Buford Hwy, Duluth, GA 30097; Attn: Job VS.

Programmer/Analyst (Pittsburgh, PA & other US client sites): Analyze, design, develop, implement, & maintain application systems & subsystems; interface w/users; prepare documentation; provide technical support. Environment: IBM Mainframe; ADABAS; Natural; MVS/ESA. Bachelors in any major + 2 yrs exp in job offered. \$73K/yr; 40 hr/wk 7-4. Send resume to: JO# 2018955; Mr. James Clarke, Mgr; Uniontown Job Ctr, 32 Iowa St., Uniontown, PA 15401.

SOFTWARE ENGINEER: Research, design and develop Industrial, Manufacturing and Business Software Systems and Applications including On-Site User Research, Identification, Analysis, Design, Development and Implementation of specialized software application systems using C, C++, Visual C++, ESRPC, C-tree, QBD, VWD, UNIX, SQL, Oracle and its related tools, and informix in Windows, Dos and Unix platforms; migrate large volume application systems on multi-hardware/software environments using migration & data conversion tools; Develop and direct software testing procedures, programming and documentation; Education & Experience: MS degree in Computer Science/Related Field with two (2) years experience in job offered; Salary: \$65,000/yr. Benefits: major medical for self, vacation, and sick leave. Applicants having proof of legal authority to work in U.S. respond to Ramesh Gude, Vice-President, Software Solutions Group 3300 Buckeye Rd, Suite 555, Atlanta, Georgia 30341 or call (770) 455-9009 or fax (770) 455-6463 or e-mail at ssg@mhd-spring.com. An Equal Opportunity Employer.

PROGRAMMERS TECHNICAL WRITERS NETWK ARCHITECTS NT LEVEL 3 SUPPORT

Immediate contracts in Dutchess Cty
Sybase DBA;
Tivoli Admins; Pwrblrd
Network Architects (LAN/WAN)
with routers, switches, hubs
Tech Writers w/ABC & Wordpro
Adecco TAD Technical
Ph/Fx: 914-896-3004/3008
email: mrcd@tadresources.com

Comp Systems Analyst: Analyze, evaluate, implement and maintain info sys; devise and apply sys ops to inventory tracking and mgmt of fin. info; set up Internet provider service. Req: 2 yrs exp in job offered and B.S. in CS or eqvt in combination of college-level coursework and work exp. Salary: \$43,000/year. EOE. Send resume to: Gulf Coast Coin & Jewelry Exchange, Inc., 4352 El Jolean Road, Pt. Charlotte, FL 33953

One of the top 30 IT divisions in the country is looking for top people

PC Week ranked us 29th out of 500 top IT divisions, so you know we've got the technologies to challenge you.

These are the people we want:

**Business Systems Analysts
Client/Server Developers
Internet Developers
GUI Developers
Database Specialists
Network Engineers
Project Managers**

Excellent salary and benefits, including relocation. Resumes E-mailed to employment@cbn.org Fax to 757-226-3899.

Request application at 1-800-888-7894
Check out our website at <http://www.cbn.org>

CBN
The Christian Broadcasting Network, Inc.

SOFTWARE ENGINEER to design, develop, test, implement, maintain and support client/server based application software for various clients using object-oriented methodologies, C, C++, Shell programming languages (ksh, csh), Motif, Rational Rose, RogueWave libraries, Tuxedo TP Monitor APIs, CMVC, Sybase and Oracle (OCI, Pro*C) on UNIX platforms (Solaris, HP-UX, AIX). Require: M.S. degree in Computer Science with two years of experience; Extensive paid travel on assignments to various client sites within the U.S. Salary: \$70,000 per year, 8 am to 5 pm, M-F. Apply by resume to: Roz L. Alford, A.S.A.P. Co., Inc., 3495 Buford Hwy, Duluth, GA 30097; Attn: Job RL.

Help Wanted: Systems Manager - team leader to perform network system administration and database management, trouble shooting, LAN design and technical support. Must be proficient on hardware architecture of workstations and microcomputers, UNIX networking programming (TCP/IP), proficient in C, C++, Novell NetWare 3.12 and 4.1, Windows NT, MS-Office Suite, Macintosh and Trend database systems. Must have a master's degree in Computer Science, 9 a.m. - 5 p.m.; \$38,000/yr; full-time. Respondent must be presently eligible for permanent employment in the U.S.; an employer paid ad. Send resume and a letter of recommendation to: Mrs. Jimmie Gaston, Division of Employment Security, 13131 New Halls Ferry Road, Florissant, MO 63033. Refer to J.O.N. 584930.

Data Base Administrator: establishes physical data base parameters. Codes data base descriptions, specifies identifier of data base to data base management system or directs others in coding data base descriptions. Min. MS degree in Computer Science or Computer Engineering. 2 yrs exp. in job offered or in computer programming. 8:30-5:30, 40hrs/wk. \$50,000/yr. Must have authorization to work in the US permanently. We are an EOE. Include JO#369838, send resumes to: Ginny Burton, Dept. for Employment Services, 275 E. Main St. 2W, Frankfort, KY 40621

Computers Full Time & Consulting
Software Engineers
Visual Basic/
Sybase/Windows NT
Minimum 1 yr exp in designing/development of Applications for Financial Industry, MS Computer Sci, Electronic Engg or related field. NY & NJ Locations available.

NUWARE TECHNOLOGY CORP.
211 Ernest Rd.,
Parlin, NJ 08859
FAX (732) 727-8480
E-MAIL recruit@nuware.com



MISSION CRITICAL CONSULTING SERVICES

At Data Dimensions, we've been providing the world with Mission Critical Consulting Services since 1991. From our acclaimed Millennium Consulting Services to our proprietary Ardes 2k™ CD-ROM and Internet product, we address virtually every Year 2000 issue—at the enterprise level—with intelligence, vision and power.

SENIOR MIS CONSULTANTS AND CLIENT SERVER SOFTWARE ENGINEERS

Qualifications:

- 4+ years' client server application development.
- Experience in one/all of the following: Visual Basic, C++, Access, Powerbuilder, SQL, Oracle or NT.
- All candidates should have strong consultative and communication skills with a strong corporate presence.
- The ability to deal at all levels of the organization and operate effectively within a commercial IS environment along with solid desktop skills is also required.
- Year 2000 experience a strong plus.
- The ability to travel regionally is required for some positions.

We also have AS/400 and IMS positions in Jacksonville, FL as well as Powerbuilder and Oracle in Raleigh, NC.

Interested candidates should send/fax resume to: Data Dimensions, Inc., 5 Mount Royal Avenue, 2nd Floor, Marlboro, MA 01752; fax: (508) 303-6766; or e-mail us at: commerce@iac.net



Data DIMENSIONS
Intelligence. Vision. Solutions.

Enter a new millennium of opportunity at www.data-dimensions.com

MIS MANAGER

Career enhancing position with a major A+ property/casualty company located in the Northeast for individual to work with the MIS Director and act as his assistant. This is a high profile position which has an excellent opportunity for advancement.

The position will require that the individual work and communicate with all levels of company staff, provide technical leadership and training to other staff members, and be "hands on" with the capability to lead the members of a small systems and programming staff to the successful completion of multiple tasks.

Requirements include work experience in the property/casualty industry, a minimum of 8 year's experience in IS with 4 years of management exposure, a current and thorough technical knowledge of the AS/400, and knowledge of both AS/400 COBOL, and RPG. Experience with the WINS software package is a major + along with knowledge of PC's and LAN's.

Position offers an excellent starting salary, a full range of benefits and an incentive bonus program. Resumes will be kept in the strictest confidence. Candidates should submit their resume with desired salary to: **GNY, Personnel Dept., 200 Madison Ave., New York, NY 10016. Fax: 212-213-1527**

EOE M/F

GNY
INSURANCE COMPANIES

PROGRAMMER ANALYSTS (All Levels)

This division of one of the country's leading consulting firms specialises in Year 2000 (Y2K) issues; they seek individuals to work a 4 day week at client-sites in major metropolitan areas across the US, requiring up to 75% travel. Package includes a good base salary and monthly premium pay, as well as, performance, project, travel and Millennium bonuses, with work beyond 2000. You need 3+ years mainframe experience across a range of application architectures/ technologies, data management experience with IMS, DB2, MVS, COBOL, etc., and proven analytical skills. Senior positions need good technical skills with 3+ years in business applications, including experience solving Y2K issues.

PROGRAMMER/ANALYSTS + DATA ANALYSTS

The country's largest information processor for the financial services industry, including mutual funds, insurance and banking, with over 5000 staff (1000+ in DP), seeks a range of Cobol Programmer Analysts, plus Data Analysts, for its Midwest headquarters.

PROGRAMMER ANALYSTS—need 2+ years MVS COBOL or COBOL II with CICS, plus TSO/SPF, JCL, with DB2 a plus.

DATA ANALYSTS—need 3+ years systems development/data analysis, including Information Modelling, Data Modelling and Data Administration. Programming skills (preferably COBOL), CASE tools and knowledge of structured analysis techniques also required.

APPLICATIONS DEVELOPERS

The leading retailer of brand-name consumer electronics products, appliances, PC's, music software and the latest in DVD seeks Applications Developers (Programmers or Programmer/Analysts) for its headquarters in affordable Virginia. Candidates need a BS/MS in CS or IS and 1+ years programming experience, which must include one or more of: AS/400, RPG/RPG ILE, COBOL, C/C++, Visual Basic, UNIX/HP-UNIX, Sybase, PowerBuilder, Informix 4GL, SQL, UNIX scripting, SAS/SAS-GIS, 3-tier Client/Server Architecture(DCE), PeopleSoft.

EMBEDDED PROGRAMMERS

This Arizona-based leader in the design, manufacture and installation of real-time distributed mine management systems seeks embedded programming/software professionals with 2+ years related experience. You will write code to help Project Engineers develop new systems, and provide technical support to clients. You must have strong UNIX and C/C++ programming skills, ideally with Visual Basic, Win 95 and MS Access, and be willing to travel worldwide. Language skills preferred. Also: **SOFTWARE ENGINEERS** with in-depth UNIX, C/C++ programming and top-down design skills on large complex systems. A grasp of embedded programming, JAVA, Artificial Intelligence and expert systems preferred.

Send/fax resume, with salary information to:

AzTECH
Recruitment Co.

Visit our web site at: <http://www.aztechjobs.com>

Something
for everyone.

(Isn't that what any
consultant would look for?)

For more than 25 years, CPL WorldGroup has delighted customers across the U.S. with top talent. Are you ready to join us?

Right now we need contractors (Programmer Analysts to Systems Analysts) with the following skills:

- NATURAL/ADABAS
- NATURAL/CONSTRUCT
- PEOPLESOF

Interested? FAX or e-mail your resume
to: CPL WorldGroup, Inc., 1990 N. California
Blvd. Suite 950, Walnut Creek, CA 94596; FAX
925/472-4904; contract@cplworldgroup.com



COMPUTERWORLD FALL Campus Edition

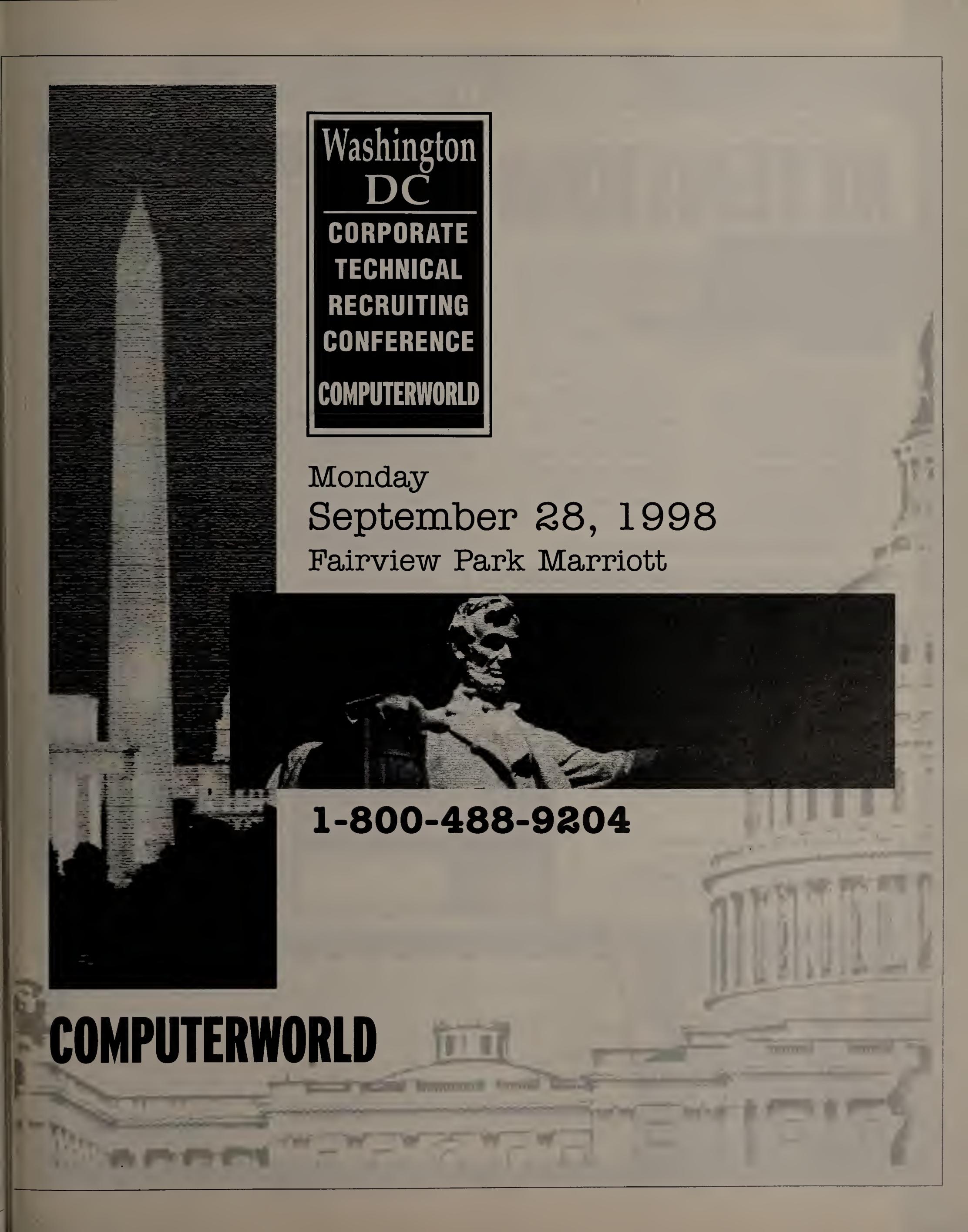


Issue:
October 31, 1998

Space Deadline:
September 16, 1998

Material Close:
October 9, 1998

1-800-343-6474, x8000



**Washington
DC**

**CORPORATE
TECHNICAL
RECRUITING
CONFERENCE**

COMPUTERWORLD

Monday
September 28, 1998
Fairview Park Marriott



1-800-488-9204

COMPUTERWORLD

For information on advertising,
call 800-343-6474

Marketplace

ATTENTION!



Attention!™ will page you, or call you on the phone when critical system or network problems occur.

- ✓ Supports UNIX, Windows NT, Windows 95, and Open VMS
- ✓ Notification via numeric and alpha pagers, telephones, and custom methods
- ✓ Interfaces with all leading system/network management products
- ✓ Unlimited escalation guarantees the right people are contacted

- ✓ Personnel call in to **Attention!** to acknowledge receipt of page
- ✓ Fault tolerant design supports redundant **Attention!** servers for immediate failover
- ✓ Event filtering suppresses redundant notification for same problem
- ✓ Heartbeat monitoring guarantees systems and critical applications are running 24x7

www.attentionsoftware.com

ATTENTION
Software

2175 N. Academy Circle • Suite 100 • Colorado Springs, CO 80909
(719) 591-9110 • fax (719) 591-9590

Call for free demo software 800-684-1684

The Best Instructors and SERVICE, SERVICE, SERVICE

Northeast Training Group, Inc.'s (NTGI) mission is to be the premier solution provider to the productivity problems that keep Information Systems Managers awake at night.

- Over 175 independent instructors
- Technical skills training — Mainframe/Client-Server/PC
- Management training
- Professional development

We'd like to get to know you. Call Sue Goldberg, just to say hello, even if you don't need our help at this time.

617.469.5557 • e-mail: ntgi@gis.net
www.gis.net/~ntgi/

I'm interested in finding out more about Computerworld Marketplace.

Name _____ Title _____
Company _____ Email _____
Address _____
Phone _____ Fax _____

Fax this form to (508) 875-3701, or call (800) 343-6474, ext. 8010;
in Canada: (508) 271-8010 or e-mail: dawn_macdowell@cw.com
and we'll mail you your information right away!

COSI
Alicomp

Year 2000 Solution Center

Leonia, New Jersey

Looking for an Alternative to the High Price of Y2K Test Facilities?

We have Test Time available on:
IBM Mainframe; IBM AS/400; DEC Alpha; RISC 6000

We can provide:

- Operating System Software
- Technical and Operational Support
- Console Support — Local or Remote
- High Speed Telecommunications Links
- On site user Workstations
- Over 50 years of combined experience in providing Information Technology Solutions

201-840-4900

Alicomp

800-274-5556

TRAINING

HP SUN MICRO IBM DEC

- | | |
|----------------------|---------------|
| • 3 to 5 day Classes | • Software |
| • Hardware | • Maintenance |
| • Customized | • On-Site |

www.aaronsolutions.com
training@aaron solutions.com

CALL

Aaron Solutions Inc.

ph: 320-573-4446

fax: 320-573-4447

AIX OS/400 HP/UX SOLARIS

233 MMX System



- 32 Meg RAM
- 24X CD-ROM
- 1.44 Floppy
- Sound/Speakers/Mic
- Mini Tower Case
- 4 Meg EDO Video
- 2.1 Gig Hard Drive
- Keyboard/Mouse/Pad

\$399.00

Monitor and Operating System sold separately.

DXM Computer, Inc. www.dxmusa.com
1 (888) 434-0017 • Fax 1 (401) 434-0260
Prices subject to change without notice.
Complete spec's visit our web site

Computerworld Marketpack



Looking for a cost-effective advertising vehicle?

Reach 145,000 Computerworld subscribers for just pennies per contact!

Space reservation close July 7, 1998.

Call today for your free copy of *How Card Deck Advertising Fits into the Business-to-Business Selling Process*.

Dawn MacDowell, Sales Operation Coordinator, (800) 343-6474, ext. 8010, in Canada: (508) 271-8010 or e-mail: dawn_macdowell@cw.com.

YES!
I want to reach over
1 million IT
purchase influencers!

IntelliQuest CIMS v4.0, Sept. 1997

COMPUTERWORLD
The Newsweekly for Information Technology Leaders

ADVERTISERS INDEX

Cisco.....	56
http://www.cisco.com	
Compaq Computer Corp.	37-48
http://www.compaq.com	
Computer Associates	7, 15
http://www.cai.com	
Compuware	34-35
http://www.compuware.com	
Dell.....	18-19
http://www.dell.com	
Executrain	64
http://www.executrain.com	
Gateway 2000.....	60-61
http://www.gateway.com	
Global Innovators.....	72/73
Hewlett-Packard	C2
http://www.hp.com	
Information Builders	27
http://www.ibi.com	
InterSystems Corp	63
http://www.intersys.com	
Lucent Technologies	52-53
http://www.lucent.com	
Meta Group	10
http://www.metagroup.com	
Microsoft.....	22-23, 30-31
http://www.microsoft.com	
NEC CSD	17
http://www.necnow.com	
Netscape.....	11
http://www.netscape.com	
Oracle Corp.....	9
http://www.oracle.com	
SAS Institute.....	13, C3
http://www.sas.com	
Sun Microsystems	21
http://www.sun.com	
Syncsort	5
http://www.syncsort.com	
TIBCO.....	66-67
http://www.tibco.com	
3COM.....	69
http://www.3com.com	
Unisys	C4
http://www.unisys.com	
(800) 874-8647 X100	
Wang Global.....	25
http://www.wang.com	

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

HAVE A PROBLEM WITH YOUR COMPUTERWORLD SUBSCRIPTION?

We want to solve it to your complete satisfaction, and we want to do it fast.

Please write to:

Computerworld, P.O. Box 2043, Marion, Ohio 43305-2043.

Your magazine subscription label is a valuable source of information for you and us. You can help us by attaching your magazine label here, or copy your name, address, and coded line as it appears on your label. Send this along with your correspondence.

Address Changes or Other Changes to Your Subscription

All address changes, title changes, etc. should be accompanied by your address label, if possible, or by a copy of the information which appears on the label, including the coded line.

Your New Address Goes Here Address shown: Home Business

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Other Questions and Problems

It is better to write us concerning your problem and include the magazine label. Also, address changes are handled more efficiently by mail. However, should you need to reach us quickly the following toll-free number is available: 1-800-552-4431 Outside U.S. call (740) 382-3322. Internet address: circulation@cw.com

COMPUTERWORLD allows advertisers and other companies to use its mailing list for selected offers we feel would be of interest to you. We screen these offers carefully. If you do not want to remain on the promotion list please write to the following address - COMPUTERWORLD, Circulation Department, 500 Old Connecticut Path, Framingham, MA 01701.

SALES OFFICES

COMPUTERWORLD HEADQUARTERS: 500 Old Connecticut Path, PO Box 9171, Framingham, MA 01701-9171

Phone: (508) 879-0700, Fax: (508) 875-4394

Publisher

Jim Martin

Vice President/Enterprise Publishing Group
Elaine R. Offenbach

Regional Vice President
Southwest
Ron Hall

Regional Vice President North/Central
Sherry Driscoll

Regional Vice President
Northwest
Linda Holbrook

NORTH/CENTRAL

Director: Isabelle Kane; Senior District Manager: Laurie Marinone; Account Executive: Dianne McNeil; Sales Operations Manager: Leslie Murray; Sales Associates: Cheryl Giangregorio, Samantha Hadley, 500 Old Connecticut Path, Framingham, MA 01701 (508) 879-0700 Fax: (508) 270-3882 TDD: (800) 428-8244

Senior District Manager: Blayne Long; Sales Associate: Jasmine Huffman, 875 N. Michigan Avenue, Suite 2846, Chicago, IL 60611 (312) 943-4266 Fax: (312) 943-2214

Senior District Manager: Jennifer Hedges; Senior Sales Associate: Brenda Shipman, 14651 Dallas Parkway, Suite 118, Dallas, TX 75240 (972) 233-0882 Fax: (972) 701-9008 TDD: (800) 822-4918

Director: Fred LoSapio; District Manager: John Bosso; Account Executive: Maureen Grady; Sales & Office Associate: Susan Kusnic; Senior Sales Associate: Jean Dellarobba; Sales Associate: John Radzniak, Mack Center 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-0090 Fax: (201) 587-9255, (201) 587-1289 TDD: (800) 208-0288

Mack Center 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-0090 Fax: (201) 587-9255, (201) 587-1289 TDD: (800) 208-0288
Director: Lisa Ladle-Wallace, Sales Associate: Kristen Majerczak, 5242 River Park Villas Dr., St. Augustine, FL 32092, (800) 779-5622 Fax: (800) 779-8622

NORTHWEST

Senior District Manager: Leslie Hutchison; District Managers: Angela Flores, Denyce Kehoe; Account Executives: Kevin Ebmeyer, Larisa Gagginis, Monica Kormoczy, Marc Wilkie; Sales Associates: Bonni-Jo Bouchard, James Dunn, Alicia Giovannini, Amy Hudson, Carrie Peterson; Operations Coordinator: Emmie Hung; Office Services: Jessica Abude; Sales Coordinator: Yvonne Zuniga, 177 Bovet Road, Suite 400, San Mateo, CA 94402 (650) 357-0200 Fax: (650) 524-7000 TDD: (800) 900-3179
Director: Sharon Chin; Senior Sales Associate: Jill Colley, 10900 N.E. 8th Street, Suite 820, Bellevue, WA 98004 (425) 451-0211 Fax: (425) 451-3822

SOUTHWEST

Director: Ernie Chamberlain; District Manager: Tom Vorisek; Senior Account Executive: Claude Garbarino; Sales Associate: Brian Shindledecker; Operations Coordinator: Madeleine Fortich; Office Services: Jessica Abude; Sales Coordinator: Yvonne Zuniga, 177 Bovet Road, Suite 400, San Mateo, CA 94402 (650) 357-0200 Fax: (650) 524-7001 TDD: (800) 900-3179

Senior District Manager: Cindy Wager; Account Executive: Robert Pietsch; Senior Sales Associate: Pat Duhl, 2171 Campus Drive, Suite 100, Irvine, CA 92612 (949) 250-3942 Fax: (949) 476-8724

ADVERTISING OPERATIONS PRINT & ON-LINE

Display Advertising Coordinators: Lisa Tanner, Gregg Pinsky, (508) 879-0700 Fax: (508) 879-0446

ENTERPRISE PUBLISHING GROUP

Boston: Director of Operations/Carolyn Medeiros; Project Coordinator/Heidi Broadley; Managing Editor/Peter Bochner, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 879-0700 Fax: (508) 875-6310

San Francisco: Director/Michele Gerus; Senior Sales Operations Coordinator/Nikki Wilson, 500 Airport Boulevard, Suite 400, Burlingame, CA 94010 (415) 347-0555 Fax: (415) 347-8312

East: Director/Kim Bailey, Mack Center 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-0090 Fax: (201) 587-9255, (201) 587-1289 TDD: (800) 208-0288

Midwest: Account Director/Linda Clinton, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 820-8288 Fax: (508) 875-3701

California, Alaska, Hawaii: Account Executive/Jason Bishop, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 271-8009 Fax: (508) 875-3701

West: Account Executive/Maureen Roberti, 500 Old Connecticut Path, Box 9171, Framingham, MA 01701-9171 (508) 271-8007 Fax: (508) 875-3701

COMPUTERWORLD INFORMATION MANAGEMENT GROUP

Computerworld Buyers Database East: (508) 879-0700 Fax: (508) 879-0184

Computerworld Buyers Database West: (415) 347-0555 Fax: (415) 347-8312

RECRUITMENT ADVERTISING SALES OFFICES

Marketing Director/Derek E. Hulitzky; Operations Director/Cynthia Delany, 500 Old Connecticut Path, Framingham, MA 01701-9171 (800) 343-6474

New England & Upstate New York: Regional Manager/Nancy Percival, 500 Old Connecticut Path, Framingham, MA 01701 (800) 343-6474, Senior Account Executive/Nancy Mack, (800) 343-6474

Mid-Atlantic: Regional Manager/Jay Savell, 961 Marcon Blvd., Suite 409, Allentown, PA 18103 (610) 264-7700, Senior Account Executive/Caryn Dlott, (800) 343-6474 TDD: (800) 208-0288

South Atlantic: Regional Manager/Katie Kress-Taplett, 3110 Fairview Park Drive, Suite 1100, Falls Church, VA 22042 (703) 876-5053, Product Manager/Pauline Smith (800) 343-6474

Midwest: Regional Manager/Pat Powers, 1011 East Touhy Avenue, Suite 550, Des Plaines, IL 60018 (847) 827-4433, Account Executives/Nicholas Burke, Susan Hammond, (800) 343-6474 TDD: (800) 227-9437

West: Regional Manager/Christopher Glenn, 500 Airport Blvd., Ste. 100, Burlingame, CA 92715 (415) 250-0164, Account Executives/Kate Angelone, Chris Connery, (800) 343-6474

COMPUTERWORLD

President/CEO
Jim Martin

Vice President/Marketing
Cynthia L. Ahart
(508) 820-8272

Chief Operating Officer
Bob Ainsworth
(508) 820-8200

Vice President of IS
Richard Broughton
(508) 620-7700

Vice President/
Recruitment Advertising
John Corrigan
(508) 820-8273

Vice President/Editor
Paul Gillin
(508) 620-7724

Vice President/General Manager
New Media & Information Mgmt.
Richard Mikita
(508) 628-4766

Senior Vice President/
Consumer Marketing
Gail Odeneal
(508) 820-8234

Vice President/Human Resources
Susan C. Perry
(508) 820-8160

Senior Vice President/Finance
Matthew C. Smith
(508) 820-8102

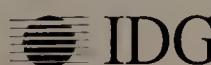
INTERNATIONAL DATA GROUP

Chairman of the Board, Patrick J. McGovern

President, Kelly Conlin

Chief Operating Officer, Jim Casella

Computerworld is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 285 computer newspapers and magazines and 500 book titles in 80 countries. Sixty million people read one or more International Data Group publications each month.



The Week in Stocks

Gainers



Losers



PERCENT

Rambus Inc	44.5	Quarterdeck Corp. (L)	-36.4
Syntel, Inc.	42.6	SCO Inc.	-14.3
Amazon.com (H).....	32.0	Retix (L)	-13.2
At Home Corp. (H)....	28.2	Red Brick Systems Inc. (L)	-13.2
Open Market Inc.	22.4	Komag Inc. (L)	-13.0
General Datacomm Inds.	22.4	Interleaf Inc.	-12.5
Micrografx Inc. (H)....	21.6	Omtool Ltd	-12.1
Intuit Inc. (H).....	20.7	Meridian Data Inc.	-11.1

D O L L A R

Amazon.com (H).....	23.31	Bell Atlantic Corp.	-5.94
Yahoo! Inc. (H).....	22.25	AT & T	-5.56
Rambus Inc	17.75	Autodesk Inc.	-3.13
America On-Line (H)	11.69	NEC America	-2.63
Intuit Inc. (H).....	10.34	Documentum, Inc.	-2.63
At Home Corp. (H).....	10.13	Parametric Technology (H)....	-1.69
Microsoft Corp. (H)	10.00	The Baan Co.	-1.69
Syntel, Inc.	9.75	Policy Management Sys	-1.69

INDUSTRY ALMANAC

Y2K fix-it companies

ith year 2000 troubles catching the attention of even Rep. Newt Gingrich, the topic is beginning to reach far beyond the pages of high-tech trade publications.

Even so, some of the Wall Street fever for year 2000 stocks has cooled, and many analysts are backing away from companies that make year 2000 assessment and analysis tools [CW, April 20]. Attention has shifted to services firms that can roll up their sleeves and help fix applications.

"It's very unlikely that all the Y2K problems will be fixed in time, so there will be a lot of Y2K work [for services providers] going on beyond 2000," says Terrance Tierney, an analyst at J. P. Morgan Securities, Inc. He adds that those companies that get their feet in the door at large corporations with year 2000 work will likely be able to leverage that access to sell their other services.

Bill Loomis, an analyst at Legg Mason Wood Walker, Inc. in Baltimore, agrees, saying year 2000 projects completed within the time required will impress large corporate clients.

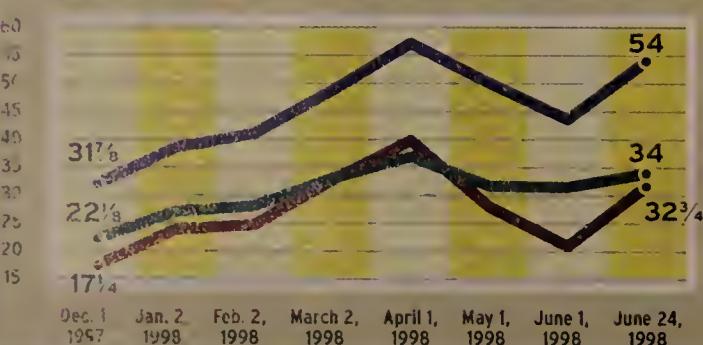
Both Tierney and Loomis point to Boston-based Keane, Inc. (AMEX:KEA) as one of the top year 2000 services companies because it has taken care of its large clients' year 2000 problems and then used those jobs as references for similar work.

In the first quarter of this year, Keane showed \$71 million in revenue from its year 2000 work, compared with \$60 million in the preceding quarter and just \$18 million in the first quarter of 1997. Loomis says he is cautious when year 2000 services revenue approaches 50% of total revenue, but Keane's year 2000 income makes up only 34% of its total. Ciber, Inc. (NYSE:CBR) in Englewood, Colo., is attractive for the same reason, Tierney says, with its year 2000 revenue now less than 20% of its total. — Stewart Deck

YEAR 2000 SUCCESS STORIES

The stock prices for services companies show how year 2000 work has paid off

 Keane Ciber Information Management Resources



EXCH	52-WEEK	RANGE	JUNE 26	WK NET	Wk Pct	EXCH	52-WEEK	RANGE	JUNE 26	WK NET	Wk Pct							
			2PM	CHANGE	CHANGE				2PM	CHANGE	CHANGE							
Communications and Network Services																		
COMS	59.69	22.94	3 COM CORP.	30.38	3.88	14.6	SDRC	30.00	15.25	STRUCT. DYNAMICS RESEARCH	24.13	2.13	9.7					
AIT	50.25	30.13	AMERITECH CORP.	43.75	-0.81	-1.8	SYBS	23.63	6.13	SYBASE INC.	6.91	-0.03	0.5					
ASND	56.75	22.00	ASCEND COMMUNICATIONS	48.88	-1.06	-2.1	SYMC	32.63	17.88	SYMANTEC CORP.	26.19	1.44	5.8					
T	68.50	34.00	AT & T	57.56	-5.56	-8.8	SNPS	47.13	29.13	SYNOPSYS	44.88	3.31	8.0					
BNYN	13.38	1.75	BANYAN SYSTEMS INC.	6.69	-0.16	-2.3	SSAX	17.63	6.38	SYSTEM SOFTWARE ASSOC.	6.41	-0.22	-3.3					
BAY	41.88	21.38	BAY NETWORKS INC.	31.63	1.63	5.4	SYSF	14.50	1.06	SYSTEMS SOURCE CORP.	1.38	0.13	8.3					
BEL	106.00	68.00	BELL ATLANTIC CORP.	90.88	-5.94	-6.1	BAANF	55.50	28.56	THE BAAN CO.	38.06	-1.69	-4.2					
BLS	69.50	43.31	BELLSOUTH CORP. (H)	69.13	0.94	1.4	TRUV	5.19	0.75	TRUEVISION CORP. (L)	1.44	-0.13	-8.0					
BRKT	22.75	9.25	BROOKTROUT TECHNOLOGY	14.13	-0.44	-3.0	VIAS	65.25	12.38	VIASOFT INC.	15.88	2.38	17.6					
CS	38.50	11.44	CABLETRON SYSTEMS	12.19	-1.31	-9.7	VSIQ	50.88	26.50	VISIO CORP.	45.00	3.63	8.8					
CGRM	21.88	8.56	CENTIGRAM COMMUNICATIONS	11.31	1.31	13.1	WALK	20.44	11.88	WALKER INTERACTIVE SYSTEMS	15.31	2.06	15.6					
CSCO	89.50	43.38	CISCO SYSTEMS INC. (H)	88.81	6.56	8.0	WALL	28.25	10.13	WALL DATA INC.	12.00	0.50	4.3					
CMNT	6.13	3.31	COMPUTER NETWORK TECH.	5.00	0.00	0.0	WANG	32.25	18.63	WANG LABORATORIES INC.	24.81	0.81	3.4					
CNXC	31.25	7.88	CONCENTRIC NETWORK CORP. (H)	29.00	4.19	16.9	Internet											
DIGI	32.75	16.50	DSC COMMUNICATIONS	29.88	2.41	8.8	AMZN	104.75	8.88	AMAZON.COM (H)	96.19	23.31	32.0					
FORE	26.75	13.25	FORE SYSTEMS INC. (H)	25.75	1.50	6.2	AOL	108.38	26.69	AMERICA ON-LINE (H)	106.75	11.69	12.3					
GDC	8.38	3.25	GENERAL DATACOMM INDUS.	5.13	0.94	22.4	ATHM	57.25	16.63	AT HOME CORP. (H)	46.00	10.13	28.2					
GSX	53.00	36.50	GENERAL SIGNAL NETWORKS (L)	36.50	-1.31	-3.5	EDFY	22.13	8.06	EDIFY CORP. (L)	9.25	0.63	7.2					
GTE	64.38	40.50	GTE CORP.	57.44	1.25	2.2	XCIT	93.31	13.50	EXCITE, INC.	76.75	3.13	4.2					
LU	83.25	35.38	LUCENT TECH. (H)	80.25	7.88	10.9	SEEK	45.00	4.38	INFOSEEK CORP.	33.88	0.63	1.9					
MADGF	9.19	3.25	MADGE NETWORKS NV	4.69	0.06	1.4	LCOS	79.13	11.38	LYCOS INC.	67.50	6.88	11.3					
MCIC	58.00	27.31	MCI COMMUNICATIONS CORP. (H)	56.88	1.31	2.4	NSCP	49.50	14.88	NETSCAPE COMM. CORP.	26.69	-1.25	-4.5					
NETM	5.25	2.09	NETMANAGE INC.	2.88	0.19	7.0	NSOL	58.00	11.75	NETWORK SOLUTION INC	42.63	1.50	3.6					
NTRX	3.50	0.63	NETRIX CORP.	2.31	0.13	5.7	OMKT	29.13	8.88	OPEN MARKET INC.	19.13	3.50	22.4					
NCDI	13.75	5.88	NETWORK COMPUTING DEVICES	6.75	-0.13	-1.8	PEGS	31.00	12.50	PEGASUS SYSTEMS	26.50	1.00	3.9					
NWK	22.38	11.63	NETWORK EQUIPMENT TECH.	14.50	-1.13	-7.2	PSIX	15.25	4.25	PSINET	12.81	0.31	2.5					
NN	69.38	18.94	NEWBRIDGE NETWORKS CORP.	24.25	2.06	9.3	QDEK	3.40	0.63	QUARTERDECK CORP. (L)	0.66	-0.38	-36.4					
NOVL	13.44	6.28	NOVELL INC.	12.56	-0.31	-2.4	SCUR	15.25	5.38	SECURE COMPUTING CORP.	10.00	0.88	9.6					
ODSI	14.50	5.19	OPTICAL DATA SYSTEMS INC.	5.63	0.13	2.3	SPYG	15.38	4.06	SPYGLASS INC.	11.63	0.44	3.9					
PCTL	13.50	5.63	PICTURETEL CORP.	8.75	0.13	1.4	YHOO	156.25	21.75	YAHOO! INC. (H)	149.75	22.25	17.5					
OPEN	3.50	0.97	PROTEON INC.	1.16	0.03	2.8	Semiconductors											
RACO	4.13	1.00	RACOTEK INC.	2.75	-0.09	-3.3	AMD	42.75	16.38	ADVANCED MICRO DEVICES	17.63	-0.06	-0.4					
RADS	29.38	13.63	RADIANT SYSTEMS INC	14.50	-1.47	-9.2	ADI	39.63	22.00	ANALOG DEVICES INC.	24.63	1.56	6.8					
VRTL	11.63	3.63	RETIX (L)	3.91	-0.59	-13.2	CRUS	17.75	8.88	CIRRUS LOGIC	9.25	0.13	1.4					
SBC	46.56	26.75	SBG COMMUNICATIONS	40.50	0.63	1.6	CY	18.94	7.38	CYPRESS SEMICONDUCTOR CORP.	7.81	-0.06	-0.8					
SFA	26.13	14.00	SCIENTIFIC ATLANTA INC.	24.81	3.13	14.4	INTC	102.00	65.66	INTEL CORP.	76.19	7.25	10.5					
SHVA	16.44	8.06	SHIVA CORP.	8.69	-0.63	-6.7	LSSC	74.50	25.63	LATTICE SEMICONDUCTOR	29.50	2.25	8.3					
FON	75.63	44.00	SPRINT CORP.	74.06	2.31	3.2	LSI	36.75	18.63	LSI LOGIC CORP.	23.19	-0.56	-2.4					
QWST	41.06	13.19	QWEST COMMUNICATIONS	33.19	3.38	11.3	MCR	46.88	21.38	MICREL SEMICONDUCTOR INC.	33.00	3.88	13.3					
SMSC	18.13	8.00	STANDARD MICROSYSTEMS CORP.	8.50	-0.75	-8.1	MU	60.06	20.06	MICRON TECHNOLOGY	25.06	1.31	5.5					
USW	58.00	35.38	U S WEST INC.	48.56	-0.63	-1.3	MOT	90.50	48.56	MOTOROLA INC.	53.06	3.44	6.9					
XIRC	18.00	8.63	XIRCOM	14.88	0.94	6.7	NSM	42.88	13.06	NATIONAL SEMICONDUCTOR (L)	13.88	0.63	4.7					
XYLN	31.31	13.38	XYLAN CORP.	27.13	0.00	0.0	RMBS	86.75	35.50	RAMBUS INC.	57.63	17.75	44.5					
PCs and Workstations																		
UP 5.0%																		
AAPL	31.63	12.75	APPLE COMPUTER INC.	28.13	1.31	4.9	TXN	71.25	39.63	TEXAS INSTRUMENTS	58.06	3.13	5.7					
CPQ	39.75	19.63	COMPAQ COMPUTER CORP.	28.81	1.25	4.5	VLSI	38.69	14.56	VLSI TECHNOLOGY	18.75	2.13	12.8					
DELL	98.50	28.06	DELL COMPUTER CORP.	92.13	7.06	8.3	XLNX	57.13	28.50	XILINX	35.25	2.63	8.0					
GTW	59.25	25.06	GATEWAY 2000 INC.	48.81	4.31	9.7	Peripherals and Subsystems											
HWP	82.38	53.63	HEWLETT PACKARD CO.	60.63	3.13	5.4	ADPT	54.25	12.50	ADAPTEC INC.	16.00	0.81	5.3					
MUEL	21.00	8.44	MICRON INTERNATIONAL INC.	12.44	1.81	17.1	APCC	34.38	18.50	AMERICAN POWER CONVERSION	28.50	0.13	0.4					
NIPNY	74.00	41.94	NEC AMERICA	43.75	-2.63	-5.7	ANDA	2.81	1.00	ANDATACO INC.	1.38	-0.06	-4.3					
SGI	30.31	10.94	SILICON GRAPHICS	11.94	-0.13	-1.0	CREAF	29.38	11.00	CREATIVE TECHNOLOGY LTD.	12.50	0.44	3.6					
SUNW	53.31	30.38	SUN MICROSYSTEMS INC.	43.63	0.75	1.7	RACE	14.13	0.50	DATA RACE INC. (L)	0.59	0.03	5.6					
Large Systems																		
OFF -0.6%																		
DGN	37.94	13.38	DATA GENERAL CORP.	14.81	-0.25	-1.7	DTM	13.69	7.88	DATARAM CORP.	11.63	0.00	0.0					
IBM	129.31	88.63	IBM	112.88	5.25	4.9	EMC	47.63	18.88	EMC CORP.	44.69	-0.69	-1.5					
MDCD	6.63	3.13	MERIDIAN DATA INC.	4.50	-0.56	-11.1	EMLX	19.75	5.31	EMULEX CORP.	5.63	-0.06	-1.1					
NCR	38.50	25.63	NCR CORP	32.38	1.31	4.2	IISFD	4.69	1.44	INTELLIGENT INFO. SYSTEMS (L)	7.63	0.81	11.9					
PRCM	18.63	6.13	PROCOM TECHNOLOGY, INC.	6.44	-0.06	-1.0	IOM	16.75	4.75	IOLOGIC CORP. (L)	5.50	0.06	1.1					
SQNT	31.25	10.50	SEQUENT COMPUTER Sys. (L)	12.38	0.19	1.5	KMAG	24.38	5.44	KOMAG INC. (L)	5.44	-0.81	-13.0					
TEXM	6.00	2.50	TEXAS MICRO INC.	3.56	-0.19	-5.0	MTSI	34.88	13.00	MICRO TOUCH SYSTEMS INC.	17.63	2.00	12.8					
SRA	60.75	22.88	STRATUS COMPUTER INC. (L)	23.75	-1.19	-4.8	MTIC	17.88	4.25	MTI TECHNOLOGY CORP.	9.00	0.19	2.1					
UIS	28.38	7.19	UNISYS CORP. (H)	27.69	1.94	7.5	AQM	23.06	2.25	QMS INC.	4.00	0.31	7.2					
Software																		
UP 2.8%																		
ADBE	\$3.13	33.50	ADDOBE SYSTEMS INC.	43.25	3.94	10.0	QNTM	43.25	17.75	QUANTUM CORP.	19.25	0.81	4.4					
AMSWA	15.63	6.75	AMERICAN SOFTWARE INC. (L)	7.19	-0.19	-2.5	RDUS	8.13	2.25	RADIUS INC.	2.63	0.25	10.5					
APLX	12.50	3.56	APPLIX INC.	3.81	-0.44	-10.3	SEG	50.50	17.75	SEAGATE TECHNOLOGY	23.06	2.25	10.8					
ARSW	53.25	27.19	ARBOR SOFTWARE	33.00	1.00	3.1	SOS	14.00	3.63	STORAGE COMPUTER CORP.	4.63	0.63	15.6					
ARDT	15.88	6.63	ARDENT SOFTWARE	12.50	1.38	12.4	STK	88.75	41.75	STORAGE TECHNOLOGY	83.25	5.13	6.6					
ARSC	36.38	19.25	ARIS CORP.	29.63	-0.75	-2.5	TEK	48.19	33.94	TEKTRONIX INC.	36.31	0.50	1.4					
ADSK	51.13	30.50	AUTODESK INC.	38.44	-3.13	-7.5	WDC	54.75	10.25	WESTERN DIGITAL CORP.	11.25	-0.13	-1.1					
BMCs	53.88	25.25	BMC SOFTWARE INC. (H)	51.38	4.25	9.0	XRX	115.00	66.19	XEROX CORP.	100.94	5.63	5.9					
BOOL	26.00	13.94	BOOLE AND BABBAGE	22.63	-1.31	-5.5	Services											
BOBJY	20.00	6.63	BUSINESS OBJECTS	17.25	0.88	5.3	AMSY	30.00	17.63	AMERICAN MGMT. SYSTEMS	29.44	1.63	5.8					
CAYN	3.69	0.94	CAYENNE SOFTWARE INC.	1.44	-0.06	-4.2	ANLY	36.50	20.88	ANALYSTS INT'L	28.63	0.25	0.9					
CNTR	3.31	0.88	CENTURA SOFTWARE	2.00	0.00	0.0	AUD	72.19	26.56	AUTO DATA PROCESSING (H)	70.44	1.13	1.6					
CHKPF	50.50	21.75	CHECKPOINT SOFTWARE	31.75	4.31	15.7	CATP	57.50	30.25	CAMBRIDGE TECH PARTNERS	56.00	1.50	2.8					
COGN	35.00	17.63	COGNOS INC.	25.94	0.94	3.8	CEN	61.38	32.13	CERIDIAN CORP.	58.75	1.06	1.8					
CA	61.50	34.88	COMPUTER ASSOCIATES	58.63	0.63	1.1	CPU	38.00	14.50	COMPUSA INC.	18.75	1.88	11.1					
CPWR	53.38	22.63	COMPUWARE CORP.	47.75	-1.38	-2.8	CHRZ	53.50	25.75	COMPUTER HORIZONS	36.00	1.44	4.2					
CSRE	13.13	4.25	COMSHARE INC.	7.94	-0.31	-3.8	CSC	62.81	33.63	COMPUTER SCIENCES (H)	61.88	2.81	4.8					
COSFF	6.69	1.40	COREL CORP.	2.25	0.00	0.0	DTK	49.38	27.00	COMPUTER TASK GROUP	30.63	0.00	0.0					
DWTI	5.38	2.13	DATAWARE TECHNOLOGIES INC.	3.50	0.56	19.1	EGGS	12.75	3.75	EGCHIEF DISCOUNT SOFTWARE	8.50	-0.06	-0.7					
DCTM																		

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

Copyright Nordby International, Inc., Boulder, Colo. (nordby.com)
This information is based on sources believed to be reliable, and while extensive efforts are made to assure its accuracy, no guarantees can be made. Nordby International and Computerworld assume no liability for inaccuracies. For information on Nordby's customized financial research services, call (303) 938-1877.

How to contact Computerworld

TELEPHONE/FAX

Main phone number(508) 879-0700
All editors unless otherwise noted below
Main fax number(508) 875-8931
24-hour news tip line(508) 820-8555

E-MAIL

Our Web address is www.computerworld.com. All staff members can be reached via E-mail on the Internet using the form:

firstname_lastname@cw.com.

All IDG News Service correspondents can be reached using the form:

firstname_lastname@idg.com.

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to:

letters@cw.com.

Include your address and telephone number.

MAIL ADDRESS

PO Box 9171, 500 Old Connecticut Path,
Framingham, Mass. 01701

SUBSCRIPTIONS/BACK ISSUES

Phone(800) 552-4431
E-mailcirculation@cw.com
Back Issues(508) 820-8167

REPRINTS/PERMISSIONS

PhoneRay Trynovich (717) 560-2001, ext. 24
E-mailsales@rmsreprints.com

CONTACTING CW EDITORS

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

Editor Paul Gillin (508) 820-7724
Executive Editor Maryfran Johnson (508) 820-8179

DEPARTMENT EDITORS/NEWS

News Editor Patricia Keefe (508) 820-8183
Sections Editor Kevin Fogarty (508) 820-8246
Assistant News Editor Michael Goldberg (508) 820-7789
Assistant News Editor Mitch Betts (202) 347-6718
Assistant Sections Editor Anne McCrory (508) 820-8205
Online Editor Johanna Ambrosio (508) 820-8553
Online News Editor Judith H. Bernstein (516) 266-2863
Industry Editor Joe Maglitta (508) 820-8223
West Coast Bureau Chief Galen Gruman (650) 548-5512

NATIONAL CORRESPONDENT

IT services, systems Julia King (610) 532-7599
integration, outsourcing

SENIOR EDITORS/NEWS

Labor issues, IS careers Barb Cole-Gomolski (760) 728-8858
Security, network Laura DiDio (508) 820-8182
operating systems
Network/systems management Patrick Dryden (817) 924-5485
Microsoft NT, Sharon Gaudin (508) 820-8122
systems software
IS management, year 2000, Thomas Hoffman (914) 988-9630
financial services
E-commerce, Internet issues Sharon Machlis (508) 820-8231
Microsoft, investigative reports Kim S. Nash (773) 871-3035
Java, intranets, extranets Carol Sliwa (508) 628-4731
Client/server software, Craig Stedman (508) 820-8120
Unix applications

Midrange hardware, Jaikumar Vijayan (508) 820-8220

Unix, mainframes

Internetworking Bob Wallace (508) 820-8214

SENIOR WRITERS/NEWS

Computerworld online Stewart Deck (508) 820-8155
E-mail, groupware, Roberta Fusaro (508) 620-7776
document management
Mobile computing, help desk Kim Girard (650) 548-5515
PCs, servers, network April Jacobs (508) 820-8121
computers, Windows
Computerworld online Patrick Thibodeau (508) 820-8143

STAFF WRITERS/NEWS

New products, Nancy Dillon (650) 548-5538
multimedia, storage
Telecommunications, Matt Hamblen (508) 820-8567
federal government

Computerworld online Tom Diederich (650) 548-5581

OPINIONS

Staff Columnist Frank Hayes (503) 252-0100
Columns Editor Steve Ulfelder (508) 620-7745

DEPARTMENT EDITORS/FEATURES

Managing Allan E. Alter (508) 620-7714
Technology reviews/ James Connolly (508) 820-8144
Review Center

SENIOR EDITORS/FEATURES

Editor at large Gary H. Anthes (202) 347-0134
Features writer Kevin Burden (508) 620-7717
Review Center Cathleen Gagne (508) 620-7729
QuickStudy Stefanie McCann (508) 820-8274
Management Kathleen Melymuka (508) 628-4931
Managing Rick Saia (508) 820-8118
In Depth Steve Ulfelder (508) 620-7745
IT Careers David B. Weldon (508) 820-8166

RESEARCH

Bob Fink, director of market research (508) 820-8116;
Laura Hunt, research analyst; Keith Shaw, graphics co-ordinator; Mari Keefe, online researcher.

COPY DESK

Ellen Fanning, managing editor (508) 820-8174; Jamie Eckle, assistant managing editor; David Ramel, senior copy editor; Pat Hyde, Adam Perez, Monica Sambataro, copy editors; Jeremy Selwyn, senior online copy editor.

GRAPHIC DESIGN

Tom Monahan, design director (508) 820-8218; Janell Genovese, associate art director/features; Mitchell J. Hayes, associate art director/news; David Waugh, associate art director/online; Nancy Kowal, senior graphic designer; Alice Goldberg-FitzHugh, April O'Connor, graphic designers; Rich Tennant, John Kossner, cartoonists.

ADMINISTRATIVE SUPPORT

Linda Gorgone, office manager (ext. 8176); Connie Brown (ext. 8178), Lorraine Witzell (ext. 8139); Beliza Veras-Moriarty (ext. 8172); Chris Flanagan, editorial assistants, (650) 548-5563.

COMPUTERWORLD MAGAZINES GROUP

(Includes Premier 100, Best Places to Work in IS, Intranet Series, Emmerce, Global Innovators and Careers.)
Alan Alper, editor (508) 820-8115; Joyce Chutchian-Ferranti, Amy Malloy, managing editors; Kimberlee A. Smith, assistant managing editor and online coordinator; Mary Beth Welch, associate art director.

COMPUTERWORLD ONLINE

Computerworld online is our World Wide Web site. On it, we publish features and daily news that supplement our print coverage. We also have special audio features, such as interviews with industry notables, and the Computerworld Minute, an audio version of the day's top news.

And there are lists of URLs and other online resources; some relate to print stories, and some do not. For questions regarding online news, contact Judy Bernstein, online news editor, at (516) 266-2863 or judy_bernstein@cw.com. For non-news online information, contact Johanna Ambrosio, online editor, (508) 820-8553 or johanna_ambrosio@cw.com.

Companies in this issue

Page number refers to page on which story begins. Company names can also be searched at www.computerworld.com.

3Com Corp.16,57	Communications Managers	Foote, Cone & Belding3	Lambert & Associates29,80	Platinum Technology, Inc.59	Tandy Corp.65
Aberdeen Group, Inc.6,20,24	Association	Framework Technologies Corp.54	Legg Mason Wood Walker, Inc.98	PNC Bank Corp.26	Tele-Communications, Inc.100
Acer Corp.8	Compaq Computer	Gartner Group, Inc.20,51,57,59	Levi Strauss & Co.36	PPG Industries, Inc.6	Teleport Communications Group....100
Adobe Systems, Inc.84	Corp.10,20,65,68,79	Gateway 2000, Inc.68	Logicon Syscon49	Price Waterhouse LLP1	TemPositions Group.....1
Advanced Fiber Communications10	Complete Business Solutions, Inc.98	General Motors Corp.6	Longs Drug Stores Corp.51	Priority Pharmacy, Inc.10	Texas Instruments, Inc.84
Advanced Micro Devices, Inc.65	CompUSA, Inc.65	Georgetown University49	Lotus Development Corp.4,24,68,100	Proxim, Inc.24	The Arbitron Co.1
Air Products and Chemicals, Inc.84	Computer Associates	Giga Information Group3,76	Lowell General Hospital4	Pyro Spectaculars, Inc.4	The Baan Co.6
Alcoa36	International, Inc.26,57	CMAC Commercial Mortgage....57	LPS Laboratories, Inc.49	Quarterdeck Corp.12	The Centennial Funds....51
Amdahl Corp.8	Computer Horizons Corp.98	Goldman, Sachs & Co.20	Lucent Technologies16	Ray Hoving & Associates84	The Chase Manhattan Bank Corp.26
America Online, Inc.51	Computer Museum.....51	Guide International Corp.8	Manugistics Group, Inc.49	Real/ESP65	The Delphi Group, Inc.24
American Airlines3,12,33	Computer Sciences Corp.1	Harvard Institution for	MasterCard International, Inc.29	Renaissance Worldwide, Inc.49	The Fraud & Theft Information
American Express Co.29	Computer Security Institute, Inc.51	International Development8	McAfee Software, Inc.47	Research Board36	Bureau49
American International Group49	Concord Communications, Inc.16	Harvard University14,51	McDonald's Corp.4	Revco D.S., Inc.49	The Nasdaq Stock Market, Inc.20
AMR Research, Inc.6,49	Consensus Development Corp.100	Hewitt Associates, Inc.65	MCI Communications Corp.49	Richter Systems, Inc.59	The Panda Project, Inc.68
Andersen Consulting1	Coopers & Lybrand LLP.20	Hewlett Packard Co.10,65	Meridien Research, Inc.71	Rockwell International Corp.16	The Principal Financial Group....78
Apache Group4	Corel Corp.12	Highland Capital Partners51	Meta Group, Inc.8,65,80	RSA Data Security, Inc.100	The Sabre Group....16
Ardent Software, Inc.71	Corporate Management	Hitachi PC Corp.65	Metro Business Consulting, Inc.26	Rubin Systems, Inc.78	The Yankee Group....76
Argus1	Solutions, Inc.49	Holyoke Mutual Insurance Co.51	Microsoft Corp.1,3,4,10,12,14,24,26,36,37,59,76,79,87,102	Ryder University....49	Time Warner, Inc.1
AT&T Corp.100	Crane Eldec Corp.16	Hughes Aircraft Co.1	MidCore Software, Inc.54	Sales Logix1	Tivoli Systems, Inc.57
AT&T Labs68	Cutter Information Corp.24	I2 Technologies, Inc.49	Milbank, Tweed, Hadley & McCloy1	SAP AG6,59	Toshiba America Information
Automatic Data Processing, Inc.59	CVS Corp.49	IBM.1,4,8,16,20,24,26,36,37,59,65,68,71	Mobil36	Systems, Inc.65	
BB&H Consultancy51	CyberCash, Inc.51	IBM Global Services1	MTV1	Trend Micro, Inc.47	
Bell Labs100	Data General Corp.65	Informant, Inc.54	Munsch Hardt100	Trigon Blue Cross and Blue Shield....100	
Berkeley Software Design, Inc.47	DataMember, Inc.24	Informatica Corp.71	National Association of Computer	Tripod, Inc.3	
Binary Research International59	Datquest16,57	Inprise Corp.26	Consultant Businesses84	U.S. Bancorp49	
Boole & Babbage, Inc.57	Deja News, Inc.3	Intel Corp.14,20,49,65,68,76,79	NCR Corp.10,20	U.S. Department of Justice....14,36,49	
Buzz, Allen & Hamilton....76	Dell Computer Corp.8,20,65	Intelligent Solutions, Inc.71	NetDynamics, Inc.51	U.S. District Court of Appeals....14	
BRC Holdings, Inc.12	Deloitte & Touche76	International Computer Security	Siemens Business Communications ..51	U.S. Supreme Court....14	
Brio Technology, Inc.71	Delphi6	Association, Inc.8,84	Netscape Communications Corp.4,51,80,100,102	Ubique Corp.24	
C2Net Software, Inc.4,100	Deutsche Bank Securities....29	Informix Software, Inc.51	NetVantage, Inc.12	United Auto Workers6	
Cabletron Systems, Inc.57	Digital Equipment Corp.10,49,65	Inprise Corp.26	Network and Systems Professionals	United Health Care Corp.1	
California Casualty	Distinction Software, Inc.49	Intel Corp.16,20,24,47,65,68	Association87	United Technologies Corp.49	
Management Co.78	Donaldson, Lufkin & Jenrette, Inc.6	International Software Group, Inc.20	New York Stock Exchange....20	Vnet Technologies, Inc.16	
Cambridge Technology Partners....59	Drexel University49	Internet of the Sand Hills47	New York University14	Vermont Agency of Transportation....24	
Cap Gemini America....100	Drug Enforcement Administration....49	Intraware, Inc.51	Novwest Service, Inc.8	Vermont Department of Motor	
Cardservice International57	Economic Strategy Institute....80	Intrepid Systems, Inc.51	OppenheimerFunds, Inc.49	Vehicles.....24	
CBT Systems49	Electronic Data Systems Corp.1	Iomega Corp.8	Oracle Corp.6,8,26	Viacom, Inc.1	
Center for Democracy and Technology80	Electronic Privacy Information Center....3	Isogen Corp.8	Ouellette and Associates1	Visa International Service	
Central Bank of Portugal26	Eli Lilly & Co.4	J. P. Morgan Securities, Inc.98	Pacific Gas & Electric Co.57	Association29	
Charles Schwab & Co.20,51	EMC Corp.10,12	JCB Credit Card Co. Ltd.29	Pennzoil Co.3	VStream, Inc.51	
Chiron Corp.1	Everest Software Corp.1,100	Jenkins & Gilchrist84	Peritus Software Services, Inc.49	Warroom Research, Inc.51	
Ciber, Inc.98	Exchange Applications, Inc.71	Kagan Telecom Associates100	Pivotal Software, Inc.71	Wayne State University....6	
CLMI Corp.57,100	FBI51	Keaney, Inc.98	Sybase, Inc.26,80	Workgroup Strategic Services....26	
Cisco Systems, Inc.10	Federal Deposit Insurance Corp.78	KeyCorp71	Symantec Corp.62	Workstation Technologies, Inc.68	
Clarify					

Tech skills gap forces HR change

CONTINUED FROM PAGE 1

As a technical recruiter at Standard Insurance Co. in Portland, Ore., Barb Lyman meets every Monday with IS staffers to discuss open positions and candidates. Her job once was held by a part-time employee, but Lyman was brought on full time and told to make IS recruiting her sole focus.

"This is such a complicated area that it just works better if you are devoted to it," Lyman said.

Steve Curd, senior vice president and chief information officer at Hartford, Conn.-based United Health, said his company's reorganization makes it much easier for IS managers to communicate their staffing needs.

"When we have IS staff meetings and talk about business

initiatives, our director of [human resources] is at the table," said Curd, who acknowledged that he doesn't always see eye-to-eye with Porter.

Tension between human resources and IS is hardly new. Technology managers have long complained that human resources people don't understand the technical requirements of IS jobs. They also lament that traditional recruiting methods don't work in the current job market.

COMMUNICATIONS GAP

On their side, human resources folks find IS managers to be unavailable and poor communicators.

The root of the problem is that human resources doesn't understand why IS is different

from other parts of the company, said Keriann Vogel, an analyst at Meta Group, Inc. in Stamford, Conn. "There is a labor shortage in IS, but there's not a labor shortage in general," Vogel explained. As a result, "[Human resources] doesn't see why they have to pay a person 25% more in IS than they would in any other department."

The lack of understanding between the two departments can be devastating. One high-tech company saw its IS turnover rate climb from the single digits to about 30% after a 3% cap on annual raises was mandated by human resources, according to a consultant hired by the company.

Another common outcome is that IS people — already

DEPARTMENTAL DIVIDE

Some common problems between HR and IS, and how companies solve them:

Problem	Resolution
IS workers' job descriptions, salaries are too rigid	Develop IS specialists in HR
Traditional recruiting process is too slow	Have IS participate directly in recruiting
HR doesn't understand technical aspects of IS job	Have HR people meet regularly with IS or report to IS manager
HR doesn't deliver the right candidates	Get IS to write up detailed description of an ideal candidate

strapped with year 2000 projects — bypass human resources and do their own recruiting.

Still, the most successful IS departments have figured out how to work with their in-house recruiters, said Dan Roberts, president of Ouellette and Associates, a Bedford, N.H., consultancy that specializes in IT culture change. "CIOs already have too much on their plates, so staffing is an area they can't

really stay on top of," Roberts said.

Some companies, for example, make sure that human resources people have a partner in IT who is willing to work closely with them, said James Essey, president of TemPositions Group, a temporary staffing firm in New York that works with human resources people to make them more effective IS recruiters. □

Comedy Central's new edge

CONTINUED FROM PAGE 1

delivered on spreadsheets. Nothing was automated.

But that all has changed.

In January, after Comedy Central was told to make a go of it with its own sales force, the company paid to have account information extracted from MTV's AS/400 mainframe.

The data was transferred into a new system provided by Bellevue, Wash.-based Pivotal Software, Inc. using a Microsoft Corp. SQL Server database running on Windows NT.

The new 20-person sales force was armed with relationship tracking software on IBM ThinkPads, and a database containing critical contacts and account histories was built to handle information on thousands of cable affiliates.

Of the 70 million U.S. homes equipped with cable, 50 million subscribe to Comedy Central, which is based here and jointly owned by Viacom, Inc. and Time Warner, Inc. The channel turned a profit this year for the first time.

Now, the sales force must focus on using new technology to lure the 20 million remaining cable subscribers or improve upon existing cable deals.

Better deals happen by getting Comedy Central placed on a lower cable channel (any channels from 1 through 20 are considered best) or wedged more often between ESPN and

other popular networks.

But the network's sales process is complex, and the database must constantly be updated to reflect buyouts and mergers. With the new Pivotal software, salespeople can track contact changes and mark when existing deals with cable companies expire. Most important, they can keep the shared database current and eventually tie the database to their billing system to automate invoices.

QUICK CHANGES

"It changes ever so fast," said Sarah Louise Hale, a coordinator of affiliate relationships who works on deals involving 10,000 and fewer subscribers. "I can open up my database now and enter a new VP's name, and everyone has it. The worst thing as far as affiliate relations goes is to send out a pitch letter to someone who left five years ago. That is embarrassing."

And bad for business. Overall, the company hopes the new system will help it pick up another 5 million homes by year's end.

Howard Postley, a consultant at Price Waterhouse LLP in Los Angeles, said Comedy Central's system is one of the first of its kind in the industry to be brought online. "They probably have the most sophisticated network up, but other cable net-

works are poised to connect those dots in the near future."

Before launching the project, Comedy Central had to sort out the complications of merging information from its legacy billing system with information imported from MTV's AS/400 onto the Windows NT system.

"We wanted something up as soon as possible," said Macelon D'Sa, Comedy Central's director of affiliate revenue. "We wanted it correct, and we wanted to do it right."

So the channel hired an integrator and planned to train users in February. By May, the NT-based relationship management system was online. Now, sales uses one software system to track critical information that details cable company contracts, ownership, rates charged and expiration dates for existing packages.

The system is also automated. When a new affiliate picks up Comedy Central and account information is entered into the system, a system agent is triggered that will automatically alert the company when it is time to turn on a service switch.

Before choosing Pivotal, Comedy Central looked at several other systems from Sales Logix and a small, customized application for the cable industry. But Pivotal's system was the simplest to customize, provided an easy-to-change user interface and was the most robust, D'Sa said.

"You can change the [interface], but the source code from Pivotal and the database is the

same," D'Sa said.

Besides automating the selling process, the system provides a marketing component that will let Comedy Central track dollars invested in new launches, which occur each time a cable system adds the channel to a basic cable customer package. It will also be used to gauge the success of promotions held around the company with cable companies. At any time, an ac-

count manager can use the same system to generate reports that detail individual sales performance and project forecasts.

The company is also working to enable sales to E-mail contract terms to the legal department, which then rewrites and stores the legal document in a shared Microsoft Word file.

"This system is our Bible," Hale said.

And that's no joke. □

Web security hole uncovered

By Sharon Machlis
and Carol Sliwa

A BELL LABS researcher has uncovered a possible security hole in one of the most popular encryption methods used for electronic commerce on the World Wide Web.

Major Internet software vendors said last week they are developing strategies to deal with the potential flaw in the Secure Sockets Layer (SSL) protocol, including software patches and instructions on proper server configurations. Only servers, not clients, are affected.

The problem involves a standard used by RSA Data Security, Inc. encryption called PKCS #1. Bell Labs' Daniel Bleichenbacher discovered that a message encrypted with PKCS #1 can be decrypted by sending a large number of specially constructed messages to a targeted server and analyzing the rejection messages that ensue. □

It could take up to 1 million such messages to decode an SSL session, Bleichenbacher said in a statement released by Bell Labs. That means a systems administrator could see such an attack taking place.

There haven't been any reports of an actual attack using the technique, several software vendors said.

Firms already posting information for their customers include C2Net Software, Inc. (www.c2.net), Consensus Development Corp. (www.consensus.com/ssl-rsa.html), IBM (www.ibm.com/security), Lotus Development Corp. (www.lotus.com/security), Microsoft Corp. (www.microsoft.com/security), Netscape Communications Corp. (<http://help.netscape.com/products/server/ssldiscovery/index.html>), Open Market, Inc. (www.openmarket.com/security) and RSA ([www.rsa.com/rsalabs/](http://rsa.com/rsalabs/)), which holds the RSA encryption patents. □

Businesses could gain in AT&T deal

By Matt Hamblen

AT&T CORP.'S \$48 billion purchase last week of cable TV provider Tele-Communications, Inc. (TCI) could be a boon for some business users of voice and data networks. Telecommuters and branch office workers may especially benefit, analysts said.

But, with TCI's potential to reach 33 million residences, the deal will principally serve home users. TCI wires also pass by as many as 25% of all business sites in the nation, said Tom Nolle, an analyst at CIMI Corp. in Voorhees, N.J. Home businesses and branch offices could get more than 20 times the current access speed to the Internet using TCI hardware, he added.

THE BUSINESS SIDE

AT&T will offer premium data services for large businesses in 25 major cities through its January purchase of Teleport Communications Group in Staten Island, N.Y., for \$11.3 billion [CW, Jan. 12 and 19].

Although a single connection for premium service might cost \$3,000 per month, a branch business could gain 2M bit/sec. access to AT&T/TCI for a fraction of that cost, Nolle said. That kind of bandwidth would vastly increase a business's ability to download and send large files, including ones with video and graphics.

Analysts said using the cable TV infrastructure for the fabled "last mile" of access could also give a business the flexibility of running data services over cable TV and leaving voice services on an existing network.

But large businesses are interested in integrating all their networks, and AT&T is hoping to provide that with the Teleport deal. The buyout of both companies gives AT&T an enormous edge in the \$100 billion local service market dominated by the regional Bell operating companies, analysts said.

"This turns the competitive heat on the Bells up to high," said Jeffrey Kagan, an analyst at Kagan Telecom Associates. □

Beware year 2000 bait and switch

By Thomas Hoffman
and Julia King

AS THE YEAR 2000 creeps closer, outsourcing vendors will have a vested interest in redeploying the IT workers they inherit onto more lucrative or pressing millennium projects.

Historically, outsourcing contracts have provided corporate customers little protection from vendors pulling a bait and switch. Like when information technology employees are absorbed by the vendor and then redeployed onto other corporate projects, said Peter Bendor-Samuel, president of Everest Software Corp., a Dallas-based consultant and software vendor.

The year 2000 problem, Ben-



"We can't hire [our year 2000 vendor's] folks, and they can't hire ours, without express permission."

- Dan Clark,
Trigon Blue Cross and Blue Shield

dor-Samuel said, has created "a world where outsourcers have some very lucrative alternatives for where to place [human] resources." That gives vendors a strong incentive "to churn their accounts and put IT resources where they can get the most money for them," he added.

Outsourcing customers "want to ensure that [vendors make] the resources available to get the job done," said Michael F.

Corbett, president of Michael F. Corbett & Associates Ltd., a Poughkeepsie, N.Y.-based outsourcing consultant.

Consultants and users both said firms can protect themselves by building specific limits into contracts up front. CSC, for example, said its outsourcing customers typically require that it retain a minimum of 10% of their original IT staffers on their particular projects.

Outsourcing 'gotchas'

CONTINUED FROM PAGE 1

project managers and business managers to execute far more careful agreements that do the following:

- Explicitly forbid vendors from hiring away staff, only to reassign them to larger, more lucrative projects (see story above).
- Reject boilerplate contracts with low caps on a vendor's liability.
- Get in writing what does and does not constitute divine intervention.

"One trend we see coming is for vendors to regard the shortage of IT and year 2000 staff as an act of God" for which they can't be held responsible, said Peter Bendor-Samuel, president of Everest Software Corp., a Dallas-based outsourcing consultancy.

The act-of-God defense may be the most bizarre example of vendors' stepped-up efforts to limit their risk exposure as the century deadline closes in. But it is far from the only one. Some vendors, such as Price Waterhouse LLP, are starting to exclude year 2000 work from all new contracts.

Similarly, under a 10-year, \$139 million deal signed two weeks ago with Chiron Corp. in Emeryville, Calif., IBM Global Services "was not willing" to take responsibility for the year

2000-readiness of Chiron systems "it hadn't seen before" the contract was signed, a Chiron spokesman said.

Even firms that outsourced most or all of their IT operations under multiyear contracts a few years back can't assume they are covered for year 2000.

"Year 2000 wasn't even on the radar screen in 1994 and 1995. It didn't become an [outsourcing] contract issue until 1996 or 1997," said Daniel Mummery, an outsourcing attorney at Milbank, Tweed, Hadley & McCloy in New York.

"Where the real fights will occur is with contracts that were signed in 1994 and 1995 for five to seven years," Mummery predicted. Then, "vendors implicitly agreed to maintain applications, but now they're saying, 'No, no, no, year 2000 is not just a bug fix,' and that they're not responsible."

As a result, companies with existing outsourcing contracts are having to go back and negotiate new and separate deals specifically for year 2000 work. Spokesmen for Andersen Consulting and Computer Sciences Corp. (CSC) in El Segundo, Calif., both confirmed that their existing customers are required to negotiate separate year 2000 contracts.

That was the case at Hughes Aircraft Co., which outsourced most of its computer operations and 1,100 of its IT staffers to CSC in early 1995 under a \$1.5 billion deal.

"There's an additional cost just like it would have been if we hadn't outsourced," said a Hughes manager who said he didn't know exactly how much more the year 2000 work cost the company. But an outsourcing negotiator estimated the typical cost of additional year 2000 work at 25% to 33% of the original contract, at least for the duration of the year 2000 project.

PASS THE SUGAR

Attorneys report negotiating other deals in which vendors refused to take on year 2000 work unless the customer sweetened the contract with other IT projects (see Industry Almanac, page 98).

"I know of vendors coming in and saying, 'OK, I'll do that [year 2000 project], but you need to give me a better margin and a desktop [contract], too,'" Mummery said.

The Arbitron Co. in Columbia, Md., was especially careful before outsourcing its core ratings transaction processing system earlier this year.

Year 2000 responsibility "was a major requirement to doing this job," said Chief Information Officer John Panicker. By specifically including remediation

Dan Clark, director of applications services at Trigon Blue Cross and Blue Shield in Richmond, Va., said he set up a specific "two-way no employment" clause with Trigon's year 2000 vendor, Cap Gemini America.

"We can't hire their folks, and they can't hire ours, without express permission," Clark said. "So that's never been an issue."

But Bill Deckelman, an outsourcing attorney at Munsch Hardt in Austin, Texas, said it is harder to insert such clauses into outsourcing contracts.

"In negotiating deals, we've always tried to have some restriction on moving key employees off accounts. But this has become a lot tougher to negotiate," he said. □

tion of date problems in writing, he said, Arbitron won't have the potential litigation problems others are starting to run into.

But there are other potential pitfalls.

Several vendors, such as Electronic Data Systems Corp. in Plano, Texas, continue to accept year 2000 jobs, but they guarantee their work for only short periods of time.

"We're talking 60 to 90 days," said Tim Morton, vice president of EDS's year 2000 services. "That may not sound fair, but the code we return to customers is like a bottle of aspirin. As soon as they open it, they can contaminate it," he said.

Bill Bierce, an attorney who is negotiating an outsourcing deal for a multibillion-dollar natural resources company, said he was confronted with a similar 90-day warranty just last week, although he declined to name the outsourcing vendor involved in the deal.

"Typically, vendors are saying, 'My code is clean, but it won't be clean if you stick it in your dirty environment,'" Bierce said. "Basically, contracts are tending to have vendor protection clauses to the max. It's really a seller's market." □

& Vice President Al Gore discusses the year 2000 hot seat the next chief executive will inherit. Page 74

alt.cw

Dispatches & Images from the fringes of the electronic frontier

The Back Page

ANOTHER YEAR 2000 CRISIS

As if the programmer shortage wasn't bad enough, here comes a dispatch that says there is a worldwide shortage of trained pyrotechnicians for millennium fireworks celebrations. Jim Souza, president of Pyro Spectaculars, Inc. in Rialto, Calif., says his company alone will need 100 to 150 more pyrotechnicians to handle the global demand. He set up a one-year training program dubbed Pyro U.



Bestowing raspberries to rude sites

The floor for nominations to the Exclusionary Sites Hall of Shame is open at www.tbt.com/exclusionary.html. It spotlights lazy or mean-spirited Web site owners who exclude certain browsers. For example, one Microsoft-related site provides only a shrunken front page to visitors using Netscape.

ROBOTS STALKING ROBOTS

It is a robot version of Spy vs. Spy. Stanford University scientists have equipped autonomous "observer" robots with video cameras and successfully programmed them to track "target" robots. The researchers are working on programming their observers to stalk targets that attempt to evade pursuit. Naturally, the U.S. Army is interested.



Stanford University researchers Jean-Claude Latombe (left) and Hector H. Gonzalez-Banos with their stalker robots

Inside Lines

Think embarrassed

A group called the Billboard Liberation Front is targeting Apple's grammatically incorrect "Think Different" ad campaign, scaling tall buildings to edit the slogan with witty alternatives. Some choice additions under those black and white photos? "Think Doomed" (Amelia Earhart, referring to her fatal flight), "Think Dividends" (accompanying Ted Turner's mug) and "Think Disillusioned" (on the Dalai Lama). Apple wasn't all that amused. "We're sending them the bill" to clean it up, a spokeswoman joked.

Think embarrassed, v. 2.0

Microsoft last week fired up a Web site with a terabyte's worth of satellite photos, bragging about how it would show "the tremendous scalability" of Windows NT and its SQL Server database companion. Imagine the joy of rivals Oracle and Sun Microsystems when the overwhelmed TerraServer site quickly began greeting would-be users with messages saying their database searches couldn't be processed because of heavy traffic. The try-back-later message then got even more dire: "We're sorry, the TerraServer database is temporarily unavailable." Microsoft officials said they underestimated usage and didn't have enough Web servers in place to keep up with the demand. Got some time to waste? Try your luck at www.terraserver.microsoft.com.

Make a pit stop, pick up a job

Adecco, a Redwood Shores, Calif., employment service, is installing interactive job-search kiosks at malls and colleges all over the country. Using the kiosk's touch screen, applicants enter the sort of work they want, their education, experience, salary requirements and so on. The kiosk is linked to Adecco's central database, which matches the person with open jobs in the company's database. Applicants still have to do a face-to-face meeting with Adecco recruiters to be placed in a job, though.

A DECUS by any other name

Compaq's acquisition of Digital Equipment is forcing some people to scramble for new names for groups associated with the one-time minicomputer giant. First in line with that problem is DECUS, the Digital Equipment Computer Users Society. DECUS officials wanted to hang on to the brand equity they'd built up over the years and were thinking of changing it to mean "Distributed Enterprise Computing User Society." Nice try, fellas. But that's already taken by analyst Terry Shannon's "Shannon Knows DEC" newsletter. Doh!

Microsoft: Spam king in training?

At least some of that unwanted E-mail you get is likely to be from Microsoft. The software giant now sends 20 million pieces of E-mail every month, says Steve Ballmer, the No. 2 exec in Redmond. At a recent retail industry conference in New Orleans, Ballmer said the company used to spend \$70 million per year on direct paper mail in the U.S. But no longer. "We now send more electronic mail than we do direct mail," Ballmer enthused. "It's all part of thinking through how you re-engineer the [customer] relationship." Nothing like a little spam to cement those efforts, right, Steve?

Holy Date-Fields, Batman! It was only a matter of time before Hollywood cashed in on the year 2000 problem. The New York Post reports that Warner Brothers Studios is developing a techno-thriller starring Chris O'Donnell called Y2K. O'Donnell plays a young programmer who "discovers dangerous information" while working on a company's software as D-day approaches. The film uses the computer bug as a backdrop to center on O'Donnell's "harrowing personal dilemma" that stems from his work. Sound familiar? News editor Patricia Keefe would love to hear about your latest dilemma, Y2K-related or not. E-mail her at patricia_keefe@cw.com or fire up your Batphone and call (508) 820-8183 with news tips and tidbits.

Sources: San Jose Mercury News, San Jose, Calif.; Internal Revenue Service, Washington; Christian & Timbers, Inc., Cleveland; Wall Street Journal, New York; Infoseek (www.infoseek.com); Consumer Electronics Manufacturers Association, Washington; Netflix.com, Scotts Valley, Calif.

Customer Relationship Management



Whether your customers are delighted, or simply delighted to leave, revolves around knowing your customer data.

That's why you need the SAS® Solution

Who are your most profitable customers...and *why*? How many customers are you losing...and *why*? What value do your customers see in your products and services...or those of your *competitors*? Instead of just storing your customer data, explore all the possibilities with the SAS Solution for Customer Relationship Management.

It's the only software that integrates the full scope of managing customer relationships. Collect information at all customer contact points...then analyze data to better understand customer needs. Refine business strategies around your most profitable customers. Determine lifetime customer value. All by just pointing and clicking.

To find out more, and request a free *Guide to Customer Relationship Management with the SAS® Solution*, visit us at www.sas.com/crm

Profile customers

Assess marketing ROI, analyze churn, and more

Award-winning data warehousing capabilities

Fully Web enabled

Year 2000 compliant

SAS
SAS Institute Inc.
The Business of Better Decision Making

www.sas.com/crm E-mail: cw@sas.com Phone 919.677.8200

In Canada phone 1.800.363.8397 SAS is a registered trademark of SAS Institute Inc. Copyright © 1998 by SAS Institute Inc.

**Unisys eNTerprise-class solutions for Windows NT®
guide you over unpredictable terrain.
Get ready to scale to impressive new heights.**



Unisys-deployed Microsoft® Windows NT systems are designed to handle the most unexpected load environments. Our eNTerprise-class NT servers offer a highly scalable bus structure and up to 12 processors to meet the demands of volatile markets. And our expertise in creating and supplying eNTerprise-class NT solutions remains exceptional. That's why Microsoft has teamed up with Unisys to create the Unisys/Microsoft Enterprise Partnership—an alliance designed to help customers capitalize on NT as an anchor for highly scalable solutions. Stop by our Web site to find out more.

UNISYS